State of Idaho
2002 Agricultural Smoke Management Program
Statewide Summary

February 26, 2003

Prepared Jointly by:

Idaho State Department of Agriculture

Idaho Department of Environmental Quality

Nez Perce Tribe

Coeur d'Alene Tribe

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EXECUTIVE SUMMARY

The 2002 agricultural smoke management program (SMP) within Idaho was marked by significant improvements and difficult problems. For the first time, all smoke management plans were integrated and cooperatively executed statewide. The Idaho State Department of Agriculture (ISDA), Idaho Department of Environmental Quality (DEQ), the Coeur d' Alene Tribe, Nez Perce Tribe, and the U.S. Environmental Protection Agency (EPA) pooled their resources and expertise to implement an innovative and mutually supportive program. Advanced meteorological forecasting and state of the art smoke dispersion models were extended to Kootenai and Benewah counties. Additional field staff were hired and trained statewide. A new website was developed to promote quick dissemination of burn information to support the growers' activities and allow citizens access to the most accurate field burning information.

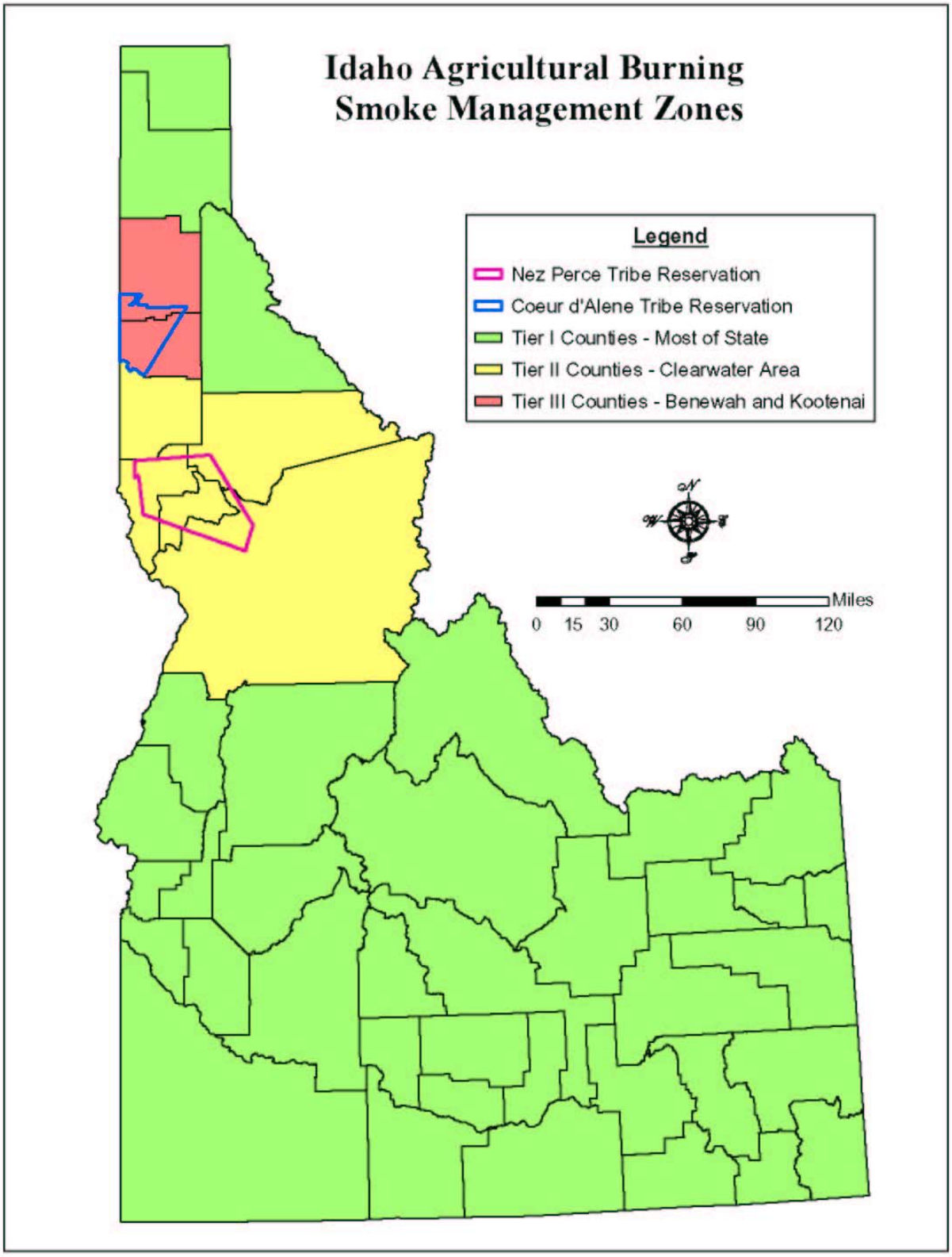
The start of the field-burning season was rather rough. Local ISDA SMP coordinators were not hired and trained until August 1. The critical smoke dispersion model (ClearSky) developed for Kootenai and Benewah counties was not ready for full deployment until the second week of August. Some growers were ready to burn before that day. Court actions stopped burning for a brief period, then were lifted. A high-pressure air mass centered itself over Idaho for weeks in August, which made liberal burn forecasts impossible. Although most growers adhered to the court- and weather-induced burning restrictions during August, considerable frustration was generated early on.

ISDA, DEQ, and Tribal SMP operational staff held weekly meetings. A second weekly meeting was held that included EPA. These meetings served to build awareness of SMP operations and how hard the smoke managers work to make the program a success. It also provided ample opportunity to exchange suggestions and technical solutions among SMP staff.

Monitoring results show two days when smoke intrusions into local communities went well beyond operational protocols – one each for the Clearwater and North Idaho Airsheds. In both instances, there is evidence that the smoke managers and burners could have predicted the situations with more careful consideration of available information. However, compared to previous years' operations this was a considerable improvement. Complaints in the Clearwater Airshed were significantly reduced from last year. In North Idaho, there still exists significant dissatisfaction among the public over SMP operations. Complaints well over one hundred per day were received on two days. On one of those days, impacts to ambient monitors were modest though over 3,000 acres were burned. Obviously, the public expects more.

It is also obvious that the growers expect more of the SMP. Growers' dissatisfaction centers on getting appropriate acres earlier in the season. Growers support appropriate burning restrictions and they remained patient with the SMP through much of the season. However, the various court- and weather-induced pressures preventing burning in August caused a backlog of acres resulting in risky burning practices late in the season and unauthorized burning in the Clearwater Airshed and Boundary County.

Significant SMP operational suggestions were compiled in the post-season review and planning sessions. Changes include: more and better trained SMP field staff hired well ahead of season, adequate communication and computing equipment for staff, emphasizing burning on best days and foregoing marginal burn days, re-emphasizing local decision processes including having local advisory committees setting size of test burns, and better outreach to sensitive public.


Idaho Agricultural Burning
Smoke Management Zones
Legend
Nez Perce Tribe Reservation
Coeur d'Alene Tribe Reservation
Tier I Counties - Most of State
Tier II Counties - Clearwater Area
Tier III Counties - Benewah and Kootenai
N
W
E
S
Miles
0 15 30 60 90 120

INTRODUCTION:

Background

Agricultural smoke management (SMP) in Idaho is a cooperative blending of state, tribal and federal authorities and responsibilities. This year for the first time, the agricultural smoke management plans within Idaho were integrated across the state and across jurisdictions. This report reflects that cooperative effort.

The cooperative and supportive nature of the Tribes, state agencies, growers' organizations and community advisory groups is a very significant quality of this program. The day-to-day participants consider this quality to be the heart of the program and appreciate each other's efforts very much. We must specifically acknowledge the financial support of the U.S. Environmental Protection Agency (EPA). Special grants from EPA financed much of the technical enhancements so critical to recent improvements to the program.

A hallmark of Idaho's integrated agricultural SMP is to have appropriate control of day-to-day operations at the local level. This report has separate sections for each of three operational tiers, which reflect that local focus. Tier II and Tier III areas have their own local advisory groups who value their specific annual reports. Thus, this report is somewhat modular and a bit repetitive to provide stand alone report sections.

Idaho developed a three-tier system for agricultural smoke management statewide. This approach expands the two-tier system proposed by the Agricultural Air Quality Task Force to the U.S. Department of Agriculture in November of 1999. Tier I is used in 37 of 44 counties in Idaho. Tier II guidelines are used in five northern counties (Latah, Lewis, Nez Perce, Clearwater, and Idaho counties) collectively referred to as the "Clearwater Airshed". Tier III guidelines are utilized in Kootenai and Benewah counties in northern Idaho. Tier II and Tier III SMP are used in counties where extensive burning of field residue is conducted. These counties are also where the greatest controversy related to field burning occurs. An outline comparison of the three-tier approach is presented in Appendix 1. The tiers are progressive in that Tier II has all the qualities of Tier I plus additional requirements and so on with Tier III.

Authorities:

The Idaho State Department of Agriculture (ISDA) is responsible for regulating disposal of crop residue under Title 22, Chapter 48, Idaho Code, for all areas within the State of Idaho except for Indian Reservations. Temporary ISDA rules were adopted in April of 2001. These rules were revised by the Idaho Legislature during the 2002 session and are currently in force (Appendix 2). ISDA works closely with the Idaho Department of Environmental Quality (DEQ), the Coeur d' Alene Tribe, and the Nez Perce Tribe to meet two overall goals for the crop residue disposal and smoke management program:

1. Reduce the impact of smoke generated from field burning on Idaho citizens, especially those with conditions making them more sensitive to air pollutants including smoke.

2. Maintain the valuable and necessary tool of fire in the best management practices "toolbox" for Idaho farmers.

The Coeur d' Alene Tribe regulates agricultural field burning within the boundaries of the Coeur d' Alene Reservation pursuant to the Coeur d'Alene Tribal Law and Order Code and Tribal Resolutions. The Tribe has operated its own SMP since the late 1980's. In 2002 the Tribe entered into a MOA with the Idaho Department of Environmental Quality and the Idaho State Department of Agriculture in order to coordinate the Tribe's SMP with the SMP for the Rathdrum Prairie in Kootenai County and the statewide program.

EPA has authority to implement the Clean Air Act within the exterior boundaries of the Nez Perce Reservation and has established a cooperative agreement with the Nez Perce Tribe to develop and implement a SMP for the Reservation. Although the Nez Perce Tribe does not have specific regulations regarding field burning on non tribally-leased land, the Tribe, EPA, DEQ, and ISDA have entered into a Memorandum of Agreement to have the ISDA Crop Residue Disposal Rule and the DEQ Emergency Episode Criteria apply on the Reservation. In this way, SMP can be coordinated uniformly through out the Clearwater Airshed, and burns can be authorized in parallel fashion to the state program.

2002 Improvements:
Based on information gained from the 2001 season and input from citizens and grower groups, significant changes to the smoke management programs across Idaho were made, and significant programmatic components added:

1. Previously distinct and separately run agricultural SMP were completely integrated across Idaho for the 2002 burn season. A coordinated and common work practice was adopted and resources were shared among agencies and authorities.

2. More Local Coordinators were hired and placed in various areas of Idaho to administer the SMP locally. The coordinator's duties included monitoring of all agricultural burning in their local area, following-up complaint calls as necessary, directly observing fields being burned, monitoring evolving meteorological conditions effecting smoke dispersion, and monitoring of particulate levels. Local coordinators had authority to decrease or increase acres burned, or shut down all agricultural burning on a given burn day based on local ventilation conditions and particulate matter levels.

3. ISDA created a dedicated website on their homepage to provide up-to-date, real time information for each county in Idaho. Information included burn/no-burn decisions, acres requested, acres approved, acres not approved, and acres confirmed burned. In counties where more restrictive requirements were in place, hours when burning could occur and an initial county limit on acres were also posted. This website was updated throughout the day when information changed.

4. In addition to the above website information, efforts to inform the public (especially sensitive individuals) of daily field burning were enhanced. In the Tier III area, email notifications went out daily with the burn decisions. The email list included people who desired advance notice, local fire protection managers, regional news organizations including radio and television, and other interested parties. In Tier II areas, local agricultural companies maintain a list of individuals requesting direct notification and contacted them with information regarding burning on designated burn days.

5. A smoke dispersion model was added to create the Tier III level of program for Kootenai and Benewah counties. Called ClearSky, this WSU model takes inputs of field location and size, plus weather data, then predicts smoke dispersion across the regional landscape. This tool allowed local smoke managers to see where smoke from daily planned burns could go and the strength of impact likely to occur before any fields were lit.

REPORTS FROM THE THREE TIERS

TIER I

Goals: Tier I counties are all counties in Idaho except Kootenai and Benewah (Tier III); and Latah, Nezperce, Lewis, Clearwater, and Idaho (Clearwater Airshed, Tier II). The goal in Tier I counties is to limit the impact of smoke on communities and citizens by establishing specific requirements that must be met prior to field ignition. These requirements reflect the cooperation and coordination of the overall crop residue disposal program between the Idaho State Department of Agriculture (ISDA), the Idaho Department of Environmental Quality (IDEQ), grower associations and individual growers, plus Meridian Environmental Technology, Inc (Meridian). They also reflect feedback received from private citizens. Tier I requirements are set forth in the Crop Residue Disposal Rules (IDAPA 02.06.16), and address reasonable options to reduce smoke and it's impacts during March and April, and August through mid-October when burning occurs.

Tier I Plan Components: In general terms, a Tier I program is a basic Smoke Management Plan (SMP) with attention going to proper safety, good burning practices, adequate ventilation conditions, field registration and approval; but no restrictions are placed on acres burned on a given "burn day." Tier I components have been taken in large part from the USDA publication *Air Quality Policy on Agricultural Burning – Recommendations from the Agricultural Air Quality Task force, Nov. 10, 1999.* These components form the basis for all SMPs in Idaho, and include the following.

a. **Training:** All growers are required to attend training provided by ISDA on effective disposal of crop residue through burning. This is available on request through the Pesticide Licensing Bureau of ISDA. The training includes information on how to produce hotter more effective burns and thereby reduce smoke generated, meteorological conditions conducive for efficient combustion of residue, and a review of grower requirements.
b. **Field Registration:** All fields to be burned must first be registered with ISDA. Information provided must include a contact person, crop type, field size and location. Field Registration could be completed online for the first time this year.
c. **Request and Receive Approval to Burn:** No Field may be burned without specific approval of ISDA. This approval is granted if it is a designated burn day in the county where the field is located.

Meteorological Services: Meridian provided daily meteorological services under contract with IDEQ for all counties of Idaho. Forecasts and recommendations for Tier I counties were based on similar criteria used in Tier II and III counties without limiting the number of acres that could be burned, or the time of day when burning can occur.

a. **Burn Calls**. Each day, Meridian's recommendations were forwarded to ISDA. The burn decision was posted on ISDA's website for each county, and in a voicemail message on a toll-free phone line dedicated to giving growers a place to request and provide information regarding agricultural burning.

Complaint Hotline: ISDA maintained a toll free complaint hotline where citizens living in Tier I counties south of Idaho County could phone in their concerns or criticisms regarding agricultural field burning or request information. IDEQ maintained, on a contract basis, a toll free compliant line to receive calls from counties including Idaho, and counties north. Complaints received were forwarded to local program coordinators who made individual calls to the complainants who requested a call back. The coordinators would then begin investigation of any rules violations where appropriate. Table 1 identifies the number of Tier I related calls logged at both complaint lines by county.

Table 1: Calls logged to toll free numbers relating to Tier I Agricultural Burning by County in 2002.

County	Supportive of Field Burning	Against Field Burning	Total Calls Received
Ada	0	1	1
British Columbia	2	53	55
Boundary	2	16	18
Canyon	0	1	1
Malheur, OR	1	0	1
Grand Total	5	71	76

More fields were registered and burned in compliance with the current rules in Tier I counties than in 2001. Even with significant increases in acres registered, it is likely that fields, especially in southern Idaho, were not registered or approved as is required prior to burning. Table 2 outlines the number of acres registered and confirmed burned in Tier I counties of Idaho in 2002.

Table 2: Acres Registered/Burned (as of October 4, 2002)**:**

County		Turf Grass	Cereal Grain	Field/Forage Grass	Other Annual	Perennial	Total
Ada	Acres Registered			21	100	15	136
	Acres Burned			12	51	15	78
Boundary	Acres Registered	1029	5964	920.5	991	0	8904.5
	Acres Burned	362	4752	927.50	631	0	
Canyon	Acres Registered	0	317	101	965.6	474	1857.6
	Acres Burned	0	287	101	523.2	293	1204.2
Gem	Acres Registered	0	26	229.5	0	0	255.5
	Acres Burned	0	25.8	125.9	0	0	151.7
Gooding	Acres Registered	0	325	0	40	0	365
	Acres Burned	0	220.5	0	20	0	240.5
Jerome	Acres Registered	0	160	0	0	0	160
	Acres Burned	0	160	0	0	0	160
Minooka	Acres Registered	0	449	0	0	0	449
	Acres Burned	0	175	0	0	0	175
Owyhee	Acres Registered	0	163	31.6	27	41.4	263
	Acres Burned	0	163	31.6	27	20.7	242.3
Payette	Acres Registered	14	0	0	116.9	0	130.9
	Acres Burned	14	0	0	116.9	0	130.9
Twin Falls	Acres Registered	0	118	0	0	0	118
	Acres Burned	0	80	0	0	0	80
Washington	Acres Registered	20	262.3	0	0	0	282.3
	Acres Burned	20	245.3	0	0	0	265.3
	Total Registered	1063	7784.3	1303.6	2240.5	530.4	12921.8
	Total Burned	396	6108.6	1198	1369.1	328.7	9400.4

Tier I Performance Summary: Boundary County presented challenges for the 2002-burning season. Agricultural burning in this county had an adverse smoke impact on the Creston Valley of British Columbia on several occasions, and sensitive individuals within Boundary County. A local ISDA coordinator was hired to oversee agricultural burning in this county. With encouragement from the local coordinator, most fields were registered with ISDA and most growers received approval to burn prior to field ignition. Field registration data shows a significant increase in acres registered in this county compared to 2001. Data regarding fields approved for burning, over the entire season, reflects two obstacles that need to be addressed in the future. Resignation of the local coordinator late in the season made it necessary to administer burning in Boundary County from the main office of ISDA. This eliminated the ability to monitor burns (both approved and otherwise) locally and to effectively determine local meteorological conditions that effect burn day decisions. Late season

burning of fields without approval under the program was reported on several occasions to ISDA and other involved agencies by concerned citizens and other growers. These unapproved burns were reportedly conducted on days when conditions for smoke dispersion were less than ideal. Based on complaint line information, unapproved burning occurred on days, which ISDA had declared as "no burn" days for that county. This illegal burning resulted in smoke impacts in the Creston Valley of British Columbia.

Secondly, ISDA and IDEQ generally face the obstacle of perception in Tier I counties. A total of 37 counties are included in the Tier I area. Fields were registered and approved for burning under the Tier I SMP from eleven of these counties. In the Tier I counties, growers do not generally perceive agricultural burning as an issue and don't see the need for regulation in their areas. There was a marked improvement in participation by growers in some areas over last season, but is still far from the levels achieved in the northern counties of Idaho. The areas of improvement can, in part, be traced to cooperation by the Idaho Department of Lands, and the Bureau of Land Management. These agencies took an active role in grower education in their areas. The obvious improvement in registration Boundary County is correlated with the presence of a local SMP Coordinator. The upper Snake River and mid-Snake lack such presence. Improvement in those two areas was negligible over last year. Lack of compliance in these areas is significant. For future seasons, ISDA and IDEQ need to continue to work closely together to educate growers in the Tier I areas on the benefits of adhering to the modest requirements of the program. ISDA will continue its outreach during the year to all growers in these counties. This outreach could be expanded to include areas outside the state that are impacted by agricultural burning in Idaho. It is also very likely that a lack of enforcement authority by ISDA for this program contributes to some of the non-adherence to regulations.

TIER II - CLEARWATER AIRSHED

(Latah, Nezperce, Clearwater, Lewis, Idaho Counties)

Goal of the SMP: The intent of the 2002 Agricultural Smoke Management Plan (SMP) for the Clearwater Airshed was to limit the impact of smoke into local communities by implementing skills and knowledge gained in the previous year's Smoke Management Pilot Program. This year's coordinated efforts provided a daily, county by county "burn" decision based on expected meteorological conditions for that day. The SMP addressed reasonable options to reduce smoke and the adverse impacts from smoke generated by agricultural practices in the Clearwater Airshed from the August through mid-October burn season.

The SMP also reflects the cooperation and coordination of various groups: the Idaho Department of Agriculture (ISDA), grower associations and individual growers, the United States Environmental Protection Agency (EPA), the Nez Perce Tribe (NPT), the Idaho Department of Environmental Quality (DEQ), Meridian-Environmental Technology, and local citizen feedback. In 2002, the NPT, EPA, DEQ, and ISDA began entering into an agreement to have the ISDA Crop Residue Disposal Rule and the DEQ Emergency Rule apply on the Reservation for the purposes of SMP. This agreement has been signed by all Parties. A copy of the Clearwater Airshed SMP Operations Guide can be found in Appendix 3.

SMP Description: This year's SMP was implemented across Idaho with a three-tiered approach. The Tier II SMP is much more rigorous than Tier I, and includes more burner obligations, more rigorous meteorological analyses, plus daily restrictions on time of burning and acreage burned. The Tier II operation has greater financial, social, and health-based protection commitments. An outline comparison of the three-tiered approach is presented in Appendix 1.

Balloon Launches: During the burn season, meteorological Pilot Balloons (pibals) were launched early each morning from Ruebens, Idaho. The NPT hired contractors to perform these duties Monday through Friday except holidays or when weather conditions did not permit. Pibals were tracked via a theodolite for approximately 20 minutes each. It was the intent of the SMP that wind and temperature profiles would be generated and transmitted electronically to the meteorological service contractor by 8:00 AM each day. However, due to hardware problems including installing a phone line on site, this could not occur. Despite this, tracking the balloons still provided daily information useful in evaluating local dispersion characteristics. By the 2003 burn-season, it is expected that this problem will be corrected, and information on local weather conditions will be available to the meteorological forecaster to permit comparison of their meteorological model to local data.

Meteorological Services Contract: For the second consecutive year, the State of Idaho and the Nez Perce Tribe hired Meridian-Environmental Technologies Inc. (Meridian), a meteorological firm with extensive agricultural weather forecasting experience. Meridian is associated with the University of North Dakota Aerospace Foundation. The service provided a daily smoke dispersion assessment for each county in Idaho accompanied by a burn or no-burn recommendation. These forecasts were made each day by 5:00 PM MDT with a follow-up revision by 10:00 AM MDT the following morning. Large amounts of meteorological data were analyzed for each forecast with the primary target criteria being atmospheric instability and upper level transport. The contractor analyzed satellite and radar imagery to search for conditions that might greatly deter dispersion. Then, the MM5 Ventilation information was analyzed and compared to other model data to determine winds and mixing heights. National Weather Service balloon soundings in Spokane and Boise were examined to determine the general speed and direction of transport winds. Precipitation forecasts were evaluated before making recommendations.

After this information was analyzed, the meteorologist had a good idea of what the forecast would be on a statewide basis. Then, the focus shifted to evaluating the Tier II areas and deciding if there should be any burning at all per given winds, stability, mixing height, precipitation, etc. Finally, current

temperatures and winds were analyzed along with balloon data. Each county in the Clearwater Airshed was then given a burn recommendation.

Within the Clearwater Airshed, each county received a qualitative smoke dispersion rating (excellent, good, marginal, or poor) for each hour from 8:00 AM until 5:00 PM local time. These hourly ratings were assigned a quantitative score (three for excellent down to zero for poor). The scores were then used to calculate the number of acres that could be burned within each of the five counties each day.

Burn Calls. Each day, the recommendations of the meteorological contractor were forwarded to ISDA, the NPT, and DEQ. These 'burn calls' or decisions were posted on the ISDA website or communicated to growers via telephone. The four smoke dispersion categories (excellent, good, marginal, or poor) were also listed for each hour in each of the five Clearwater Counties. This generally indicated, to the growers, the most opportune burn periods expected each day based on the Meridian analyses.

ISDA Website and Hotlines: ISDA has a website http://www.agri.state.id.us/Crop/crdinfo.htm to promote operations of the SMP. The site contains an explanation of Idaho's Crop Residue Disposal Rules, field registration forms, daily burn restrictions/allowances for each county, and a map. The contract service for a toll-free complaint line has been expanded to cover North Idaho including the Clearwater Airshed. ISDA also provides a toll free complaint line. The person answering obtains a description of the complaint, including location and whom it is against. Once the necessary information is gathered, it is forwarded to ISDA, DEQ, and NPT. Local SMP Coordinators make individual calls to complainants who request a call back.

Education and Outreach: All growers intending to burn crop residue must attend ISDA training. Topics covered in the training include; safety issues, burn rules, enforcement authority, residue drying times and dryness tests, techniques for ignition, meteorological conditions, and a burning checklist. These topics are tools that, if used properly and correctly, can allow for optimum burn decisions to be made by each burner.

Geographic Area Covered: Tier II: The Clearwater Airshed generally includes Clearwater, Idaho, Latah, Lewis and Nez Perce counties and is characterized by rolling prairies and tablelands of moderate relief, relatively flat with valleys, canyons and buttes. The Clearwater River and its tributaries dissect the Palouse Prairie located to the north, and the Camas Prairie located to the south with rivers deeply incised through layers of bedded basalt. The two major field burning areas are these two Prairies. The Palouse Prairie is located predominately in Latah and western Clearwater counties – and is under the jurisdiction of the State of Idaho. The Camas Prairie encompasses the Nez Perce Reservation; wherein, air quality protection is under Nez Perce Tribe and EPA jurisdiction. The State of Idaho is responsible for air quality issues on the Camas Prairie outside of the Reservation boundaries.

The Palouse topography is mainly rolling hills. As you move east from the Idaho/ Washington border, canyons and other topographical challenges are encountered. The Camas Prairie is a relatively level plateau flanked by mountain foothills to the east and south and steep canyons to the west and north, which can pose significant problems for smoke management under specific conditions. Several lakes and buttes lend variety to Camas Prairie's topography.

Topography that differs greatly in elevation over short distances can cause greater difficulties in smoke management than a single topographic profile. It is also difficult to manage smoke in areas with many different micro-profiles in a relatively small area. Different topographical profiles and the proximity of communities to fields burned annually are major reasons why sophisticated smoke management is an important tool for north central Idaho.

Tier II SMP Operations

Days of Operation: Beginning on August 1, 2002, agricultural fields throughout the State of Idaho began burning. Of the 47 burn days between August 1, 2002 and October 4, 2002, agricultural fields were burned on at least 23 of those days, which is approximately 50% of the time (based on burned acres reported to the ISDA). The majority of the burning occurred in weeks 3, 7, 8, and 9 (Table 3).

One main difficulty with this year's operations was that on August 1st, ISDA, DEQ, and NPT were not properly staffed and did not have the necessary infrastructure established. It took some time for new staff to become familiar with daily operations. As familiarity was established, the program began to run more smoothly. A total of 29,418.4 acres were approved and confirmed as burned from a total of 32,497.2 acres registered with ISDA during either the spring or fall burning season. The summer/fall burning season began with the first approved field on July 17, 2002. Forty-two acres were approved to burn on that date in Latah County. Between July 17, 2002 and October 11, 2002 there were a total of forty days where approved burning occurred in the airshed out of a total of 61 possible days. Crop census data for the Clearwater estimates 20,000 – 30,000 bluegrass acres and 70,000 wheat acres. Growers, however, estimated 50,000 - 60,000 total acres were burned in the Clearwater during the SMP season. This indicates a need to improve record-keeping in the 2003 SMP. Table 4 shows Tier II acres registered and burned by county in Tier II and by crop type. Table 5 lists dates during the burning season and corresponding acres approved to be burned on that date along with the location, time, and highest particulate matter reading recorded at any of the three IDEQ maintained monitoring sites in Moscow, Grangeville and Lewiston.

Another difficulty of early burning in the Clearwater is even when the atmospheric condition may accommodate liberal burning, fire safety concerns can preclude burning. For example, the SMP may allow ample acres, but un-harvested grain fields close to harvested grass fields present too great a risk to allow the grass fields to be burned. This happened in both 2001 and 2002, contributing to the conditions where a greater number of acres needed to be burned in September when weather conditions weren't as accommodating. Because of weather and ventilation considerations, acreage recommendations during September were conservative and did not allow approval of all requested acres thus creating the backlog. As a result, there were unauthorized burns conducted during September 10th-14th when growers needed to burn their backlogged acres before green-up of fields occurred. Burns on greened-up fields result in poorer quality burns and more smoke.

Table 3: Acres recommended, requested, and approved by date with number of complaints received in Clearwater Airshed (as of October 4, 2002)**:**

	Requested Burn Date	TOTALS REQ BY DAY	ISDA Approved	Meridian Suggested	ACRES Reported BURNED	TEOM Grangeville	TEOM Lewiston	TEOM Moscow	2.5 Kamiah	TEOM Kamiah	TEOM Reubens	Complaints
Th	**08/01/2002**	**0.00**	**0**	**0**	**0.00**	7.5	17.7	15.6				
F	**08/02/2002**	**501.80**	**430.00**		**589.30**	8.8	14.3	16.5				
Sa	08/03/2002					8.3	12.9	16.3				
Su	08/04/2002					8.7	21.1	14.2				
M	**08/05/2002**	**0.00**	**0.00**	**850**	**0.00**	10.1	9.1	5.9				**1**
Tu	**08/06/2002**	**345.00**	**345.00**	**1100**	**560.30**	7.5	9.3	9.4	**9.4**			
W	**08/07/2002**	**162.60**	**162.60**	**2050**	**74.00**	9.2	10.5	10.3				
Th	**08/08/2002**	**723.50**	**723.50**	**4200**	**518.30**	14.5	10.7	10.3				
F	**08/09/2002**	**1536.40**	**1536.40**	**5000**	**1516.00**	10.9	10.3	18.6				
Sa	08/10/2002					10.1	15.4	8.1				
Su	08/11/2002					8.2	9.5	8.7				
M	**08/12/2002**	**462.20**	**402.20**	**1400**	**313.80**	7.1	13.2	14.2	**8.2**			
Tu	**08/13/2002**	**1138.00**	**902.80**	**1800**	**1442.90**	8.4	15.2	15.1				**5**
W	**08/14/2002**	**883.70**	**955.70**	**4400**	**686.00**	10.8	17.4	14.7				
Th	**08/15/2002**	**1375.70**	**1340.70**	**2750**	**1253.10**	29.8	21.6	18.1				**1**
F	**08/16/2002**	**0.00**	**0.00**	**3650**	**0.00**	11.6	17.5	12.9				**3**
Sa	08/17/2002					23.1	28.4	24.9				
Su	08/18/2002					28.6	12.5	18.9	9.7			
M	**08/19/2002**	**1932.90**	**1932.90**	**2400**	**1142.20**	139.5	10.8	17.7				**1**
Tu	**08/20/2002**	**0.00**	**0.00**	**1100**	**11.20**	11.6	12.6	7.1				**2**
W	**08/21/2002**	**0**	**0**	**0**	**0**	6.6	10.6	12				
Th	**08/22/2002**	**0**	**0**	**0**	**0**	9.1	6.9	4.4				
F	**08/23/2002**	**0**	**0**	**0**	**0**	10.1	10.5	10.1				
Sa	08/24/2002					7.3	14	12.5	5.9			
Su	08/25/2002					7.6	8.7	11.9				
M	**08/26/2002**			**0**		9	15.1	12.7				
Tu	**08/27/2002**			**1500**		9.5	14.5	13.5				
W	**08/28/2002**	**1517.50**	**1517.50**	**1900**	**1155.70**	10.3	11.3	31.6				**11**
Th	**08/29/2002**	**42.00**	**0.00**	**0**	**198.00**	9.2	9.5	7.9				
F	**08/30/2002**			**0**		9.4	13.3	8.9	**0**			
Sa	08/31/2002					10.9	12.6	9.2				

	Requested Burn Date	TOTALS REQ BY DAY	ISDA Approved	Meridian Suggested	ACRES Reported BURNED	TEOM Grangeville	TEOM Lewiston	TEOM Moscow	2.5 Kamiah	TEOM Kamiah	TEOM Reubens	Complaints
Su	09/01/2002					9.4	14.3	5.6				
M	**09/02/2002**	**0**	**0**	**0**	**0**	5.4	11.7	5.8				
Tu	**09/03/2002**	**326.80**	**326.80**	**450**	**158.60**	12.1	16.3	7.3				
W	**09/04/2002**	**1150.80**	**1150.80**	**0**	**1314.50**	16.6	6.6	8.8				
Th	**09/05/2002**	**0.00**	**0.00**	**1500**	**0.00**	29.8	9.7	13.2	**9.7**			
F	**09/06/2002**	**0**	**0**	**0**	**0**	7.5	16.2	9.5				
Sa	09/07/2002					12.9	10.2	6.9				
Su	09/08/2002					11.1	14.5	9.8				
M	**09/09/2002**	**0.00**	**0.00**	**0**	**0.00**	13.1	22.1	10.9				
Tu	**09/10/2002**	**0.00**	**0.00**	**1000**	**0.00**	52.4	15.8	23.8				**1**
W	**09/11/2002**	**0.00**	**0.00**	**0**	**0.00**	14.3	24.1	25.8	**0**			**1**
Th	**09/12/2002**	**1102.50**	**1024.50**	**1300**	**980.70**	36.4	26.2	18.2				
F	**09/13/2002**	**2433.30**	**2433.30**	**3000**	**2448.10**	37.5	32.4	19.4				**1**
Sa	09/14/2002					31.4	24.9	18.4				1
Su	09/15/2002					17.5	23.1	22.5				
M	**09/16/2002**	**2273.20**	**2273.20**	**4350**	**2321.80**	25.5	14.1	9.8				
Tu	**09/17/2002**	**0.00**	**0.00**	**1900**	**0.00**	8	7.5	4.6	**5.4**			
W	**09/18/2002**	**270.00**	**1002.60**	**4600**	**272.20**	0.8	11.2	14.5				
Th	**09/19/2002**	**812.60**	**812.60**	**5400**	**727.50**	5.4	16.7	11.1				**1**
F	**09/20/2002**	**1197.80**	**1197.80**	**4300**	**1290.00**	5.6	7.1	11.4				
Sa	09/21/2002					5.2	6.9	9.3				
Su	09/22/2002					14	9.9	13.6				
M	**09/23/2002**	**0**	**0**	**0**	**0**	7.9	10.9	15.3	**7.8**			**1**
Tu	**09/24/2002**	**1584.40**	**1454.40**	**3000**	**1877.20**	11.9	13.1	34.9				**1**
W	**09/25/2002**	**998.50**	**998.50**	**3100**	**1345.00**	16.2	25.1	17.2				
Th	**09/26/2002**	**646.00**	**646.00**	**1000**	**873.70**	15.1	19.7	12.3				**1**
F	**09/27/2002**	**0**	**0**	**0**	**0**	11.4	11.5	14.9				
Sa	09/28/2002					26.2	8.3	14.8				
Su	09/29/2002					12.1	13.9	25.5	0			
M	**09/30/2002**	**0**	**0**	**0**	**0**	9.2	6.8	14.8				
Tu	**10/01/2002**	**826.70**	**826.70**	**5000**	**832.30**	13.6	7.2	20.1				
W	**10/02/2002**	**729.00**	**729.00**	**3000**	**377.50**	15.1	16.3	20.5				
Th	**10/03/2002**	**0**	**0**	**0**	**0**	12.4	14.7	19.5				
F	**10/04/2002**	**0**	**0**	**500**	**0**	12.3	10.5	13.3				

Table 4: Clearwater Airshed Acres Registered/Burned (as of October 4, 2002)**:**

County		Turf Grass	Cereal Grain	Field/Forage Grass	Other Annual	Total
Clearwater	Acres Registered	662.9	676.3	97.6		1436.8
[redacted]	Burned Acres	552.6	610.2	165		1327.8
Idaho	Acres Registered	3767.2	1108.1	940	645	6460.3
[redacted]	Burned Acres	3458.4	996.7	874	645	5974.1
Latah	Acres Registered	7878.2	926.1	1272.2	24	10100.5
[redacted]	Burned Acres	6272.8	926.1	1147.2	10	8356.1
Lewis	Acres Registered	7230.2	1771.8	94	309	9405
[redacted]	Burned Acres	6765.7	1505	94	309	8673.7
Nez Perce	Acres Registered	2626	2171.6	297		5094.6
[redacted]	Burned Acres	2607.7	2212.7	266.3		5086.7
[redacted]	**TOTAL BURNED**	19657.2	6250.7	2546.5	964	**29418.4**

Table 5. Particulate matter (PM 2.5) readings for Clearwater Airshed 2002 SMP. PM 2.5 levels noted are the highest reading obtained in the airshed for that date.

DATE	MONITOR LOCATION	TIME OF READING	PM 2.5 LEVELS	ACRES BURNED	BURN DAY
2-Aug	Grangeville	14:00	17.0	430	Yes
6-Aug	Moscow	20:00	9.4	185	Yes
7-Aug	Moscow	6:00	10.3	145	Yes
8-Aug	Grangeville	16:00	14.5	707	Yes
9-Aug	Moscow	20:00	18.6	1438	Yes
12-Aug	Moscow	21:00	14.2	402	Yes
13-Aug	Lewiston	9:00	15.2	902	Yes
14-Aug	Lewiston	10:00	17.4	956	Yes
15-Aug	Grangeville	13:00	29.8	1341	Yes
17-Aug	Moscow	21:00	24.9	0	No
18-Aug	Grangeville	0:00	28.6	0	No
19-Aug	Grangeville	12:00	139.5	1933	Yes
19-Aug	Moscow	7:00	17.7	1933	Yes
28-Aug	Moscow	19:00	31.6	1517	Yes
3-Sep	Lewiston	8:00	16.3	327	Yes
4-Sep	Grangeville	17:00	16.6	1151	Yes
5-Sep	Grangeville	15:00	29.8	0	Yes
10-Sep	Grangeville	14:00	52.4	0	Yes
12-Sep	Grangeville	18:00	36.4	1025	Yes
13-Sep	Grangeville	16:00	37.5	2433	Yes
14-Sep	Grangeville	18:00	31.4	0	No
15-Sep	Lewiston	9:00	23.1	0	No
16-Sep	Grangeville	14:00	25.3	2273	Yes
18-Sep	Moscow	7:00	14.5	190	Yes
19-Sep	Moscow	23:00	18.0	813	Yes
20-Sep	Moscow	21:00	7.8	1198	Yes
24-Sep	Moscow	12:00	34.9	1454	Yes
25-Sep	Lewiston	10:00	25.1	999	Yes
1-Oct	Moscow	8:00	20.1	827	Yes
2-Oct	Moscow	20:00	20.5	729	Yes
3-Oct	Moscow	9:00	19.5	0	No
4-Oct	Moscow	8:00	13.3	0	No

Monitoring Analysis - Days of Heavy $PM_{2.5}$ Accumulation: DEQ maintains and operates three continuous particulate monitors in the Clearwater Airshed. They are sited in Moscow, Lewiston and Grangeville. The Nez Perce Tribe maintains and operates two continuous monitors on the reservation, one in Kamiah and one near Reubens. The Kamiah monitor is co-located with two federal reference monitors that run every six days. Although these sites were operational, significant technical problems occurred making data retrieval limited. Three MiniVol samplers were operated in Lapwai every three days, with a fourth co-located at the monitoring site in Kamiah which ran on the 1-in-6 day federal schedule.

Results from the DEQ and Nez Perce Tribe monitors are located in Table 3 and Appendix 4. The data has not been officially quality checked and quality assured; therefore, it may only be used as a general indication of particulate concentration for August 1, 2002 through October 4, 2002.

In 2001, the Clearwater Airshed experienced 7 days where $PM_{2.5}$ values went over 80 $\mu g/m^3$ (one-hour concentrations measured by our continuous TEOM monitors). This year, the Clearwater Airshed experienced only one day with one-hour $PM_{2.5}$ concentrations over 80 $\mu g/m^3$ - August 19. From the perspective that $PM_{2.5}$ concentrations were not as consistently high as was seen in 2001, this shows an improvement over last year's Pilot SMP. However, there are areas in the program that still require improvement.

On August 19, 2002, the monitor in Grangeville rose to 139.5 $\mu g/m^3$ for a one-hour concentration. Winds were out of the north (NE-NW) from 10:00 PST to 15:00 PST (Appendix 5), and the peak concentrations were observed between 11:00 PST and 13:00 PST. The forecast for August 19, 2002 was fair to good dispersion conditions. Acres were recommended to be burned on a limited basis across the Tier II region, due to marginal boundary layer recovery and light transport winds. It was also forecasted that there would be a persistent inversion until approximately 11:00 PST, resulting in slower boundary layer recovery and some marginality in the mixing heights. Apparently, a field immediately to the north of Grangeville was burned without the ISDA field personnel being present. This occurred even though the ISDA field representative requested that he be present. This not only indicates a bad judgment in a singular instance, but it gives burners who follow the rules a bad reputation and adversely affects the health of people in the community. Conditions must be very closely evaluated when burning next to communities and other areas of concern.

In addition to August 19, there were four additional dates when at least one monitor within the airshed showed levels of particulate matter above that considered "background". These dates were August 28, September 5, 10, and 14. On all of these dates, smoke was observed that was not adequately dispersing, and complaint calls were received. August 28 was designated a burn day and 1,517 acres were approved and burned. Indications were that the smoke did not disperse as well as had been predicted. However, the highest monitor reading observed in the airshed on that date (31.6 in Moscow, Table 5) was still below the action criteria of 64 micrograms per cubic meter for PM2.5 that by rule requires cessation of burning. September 5 and September 10 were designated as burn days, but due to strong morning inversions acres recommended and duration of the burning window was very small. No acres were requested or approved on these two days under the program. September 14 was a Saturday, and by rule a no burn day. No acres were requested or approved.

In conclusion, there was only one day in which the air quality concentrations exceeded 80 $\mu g/m^3$. There were other days when particulate concentrations were elevated above background levels. Some of these days can be correlated to actual acres that were burned in the airshed. However, a precise correlation between acres burned and particulate concentration cannot always be accurately determined. There are many suspected reasons for this, among them being dispersion of the smoke, location of the burn relative to the monitors, and acreage burned without approval.

Complaints Received: This year, a new approach was taken from previous years regarding the handling of complaints. A toll-free complaint hotline was set up which allowed the public to voice their concern, as well as their opinion about agricultural field burning. Callers to the complaint line who requested a call back received calls from either ISDA, DEQ, or NPT, depending on the caller's location. ISDA, the DEQ Lewiston Region Office (LRO), and the NPT also received general complaints on smoke and field burning directly to their offices. DEQ procedure was to refer all complaints related to agricultural burning to the hotline. However, there were instances when citizens specifically wanted to log their complaint with DEQ.

There were a total of eight complaints logged against field burning with the Lewiston DEQ that were not called into the hotline (Aug. 1 – Oct. 4). The NPT received a total of five complaints. A number of complaints were also phoned in to the U.S. Forest Service offices in Orofino, Kamiah, and Kooskia during the burn season. When the NPT received some complaints from those areas, or smoke incursions into the valleys were suspected, the U.S. Forest Service offices were called to see if additional complaints had come in. Below are examples of the complaints received:

- "Every summer, the farmers ruin the summer for everyone. Hurting health. We got rid of cigarettes, let's get rid of this."
- "Smoke from agricultural burning is real bad. I operate a day-care and children cannot go outdoors. Visibility is ½ black at times. Some of the kids have asthma and are having difficulty at this time".
- "Burning of bluegrass north of town has engulfed Grangeville. I have asthma and cannot leave safely at this time to get away from the smoke."

Using information gathered by ISDA, there were 13 complaints received from Latah County, 7 from Idaho County, 1 from Lewis County, and 1 from Nez Perce County. In 2001, there were 131 documented agricultural smoke complaints in the Clearwater Airshed. There were a total of 30 complaints officially logged in 2002, which is approximately a 77% reduction. This measurable reduction in complaints may be due to the fact that citizens might not have been impacted as badly as in 2001. This does not mean that at certain times throughout the burn season that people were not adversely affected by smoke from agricultural burning, but it indicates that the Clearwater SMP was very likely more effective from a smoke-impact standpoint to downwind communities.

Grower Recommendations

1. Growers support the development of a SMP that emphasizes local control through area-based coordinators to:
    - Observe the performance of test burns and work with growers on selecting representative fields for test burns.
    - Manage the amount of burning to maximize favorable ventilation conditions,
    - Coordinate field selection to make efficient use of ignition and fire suppression equipment, and prioritize sensitive fields for specific weather conditions.
    - Divide the Clearwater region into two units, north and south of the Clearwater River, and hire an ISDA field coordinator for each area.
2. Growers see the need for greater coordination, communication, and preparedness during the field burning season through:
    - Improving interagency coordination especially with other fire managers including fire districts, county sheriffs and emergency services personnel.
    - Using the NRCS Ag Extension offices to assist with the SMP training program and grower outreach, especially for grain growers unfamiliar with the Clearwater SMP.
    - Preparation of agreements, MOU's and contracts well in advance of the burn season.
3. Growers also see the need for improved weather forecasts and burn decisions by:
    - Improving the timeliness of ISDA website postings and provide extended (3-day) forecasts in addition to the 12-hour and same day updates.
    - Improving the accuracy of burn recommendations to better match ventilation conditions with fire management and safety requirements.
4. Growers would like the CRD rules to apply to "hobby farm" owners and ditch burning. They prefer a more equitable agricultural SMP that applies to all sources of smoke.

Public Input

1. The public was often frustrated with the burn forecast and notification process.
    - Improve public notification on the timing, location, and number of acres planned for burning by utilizing radio and television announcements as well as other media,
    - Provide as much advanced notice as possible, limit changing the burn calls, and provide public notice in advance of increased acres burned.
2. The public felt that they were left out of the planning processes for developing the SMP.
    - Improve communication with downwind communities,
    - Provide more opportunities for public input from the non-agricultural community.
3. Increase the level of environmental monitoring and public safety.
    - Provide more air quality monitors in downwind communities,
    - Keep smoke out of sensitive areas, i.e. hospitals, schools, care facilities, and away from busy roadways.

IDEQ Recommendations – Lewiston Regional Office Staff working directly with the Clearwater SMP offer the following comments:

1. Burn on days with excellent dispersion and meteorological conditions, especially when burning in close proximity to communities.
2. Hold people who illegally burn their fields responsible (i.e. fines, limiting the amounty of acres they can burn the following year).
3. When a burning prescription changes significantly from the web posting, SMP must take special efforts to inform sensitive populations and allow them necessary time to prepare before increasing the amount of acres to be burned.
4. Divide fields into smaller sections (i.e. 50 acres) before burning especially in sensitive areas such as adjacent to populated areas or near difficult terrain such as canyons. This way in case a burn begins to unexpectedly deteriorate, there will not be as much smoke in the air and operations can cease more quickly.
5. SMP must continue to emphasize and refine the technical expertise of SMP practitioners: Local Coordinators, agency staff, and meteorological contractors.

NPT Recommendations

1. Improve the ventilation forecast and burn decisions through;
    - Increased monitoring of environmental parameters such as pollutant concentrations, surface and upper elevation wind speeds/direction, and temperature.
    - Increased knowledge and assessment of microclimates within the program area and their affect on smoke movement.
    - Improved feedback and communication with Meridian, ISDA, and local field coordinators.
2. Improve program operations through increased coordination with SMP partner agencies and growers.
    - Improve coordination with other state and federal agencies (BLM, IDL, USFS) that utilize or manage fire.
    - Improve communication with communities and the public potentially impacted by smoke from field burning.
    - Track and respond to complaints associated with field burning that are received by the USFS and other local land managers.
    - Improve the exchange of data records to ensure accuracy and completeness especially for field registrations.
    - Develop defined burn prescriptions especially for sensitive areas and areas with high fire risk, i.e. adjacent to unharvested fields or timber.

Overall Tier II Summary:

With the exception of the second week in September, when several farmers apparently burned outside ISDA prescription, most burners followed ISDA's rules. With the exception of August 19, 2002, when one hour PM2.5 concentration reached 139.5 $\mu g/m^3$, many people feel that the majority of the burns this year went well. However, as with last year's pilot SMP, this year was another learning experience for everyone involved. It is recommended that by the second week in July 2003, all agencies be adequately staffed, equipped, trained and ready to start the SMP for the 2003-burn season.

There is still progress that can be made from the perspective of protecting citizens of North-Central Idaho. This program can be looked at as good or bad from year to year, but it will not be seen as a success by all parties involved unless there are no adverse health effects generated from agricultural burning and there are ample burning opportunities for the growers. Smoke management is a fine line that needs to be studied in more detail so that informed decisions can be made.

TIER III
(Kootenai and Benewah Counties)

Overview

Changes in the statewide rules for crop residue disposal prompted a number of changes in the local agricultural burning smoke management programs that have operated in Kootenai and Benewah Counties for many years. Historically, the agricultural smoke management program (SMP) for Kootenai County was a voluntary program run by the growers with limited technical assistance from the Idaho Department of Environmental Quality (DEQ). This voluntary, industry-run program served growers that conducted post-harvest burning of perennial grass residue and focused primarily on the area of the Rathdrum Prairie in Kootenai County. A smaller number of fields exist outside of the Rathdrum Prairie that fall under this program. Adjacent to the Rathdrum Prairie SMP, the Coeur d'Alene Tribe also operates a SMP for the agricultural lands within the exterior boundaries of the Coeur d'Alene Indian Reservation. The Reservation boundaries include agricultural fields in both Kootenai and Benewah Counties. The Coeur d'Alene Tribe SMP is similar to the Rathdrum Prairie SMP in a number of ways but differs in that it is a regulatory program with backing of the Coeur d'Alene Tribal Council.

In 2002, these locally run SMPs were incorporated into the statewide agricultural smoke management program to provide for an integrated and coordinated smoke management program throughout the state. Across the state, there is a great deal of diversity in climate, geography, terrain features and agronomic practices. Likewise, there also exists a diversity and disparity in social acceptance of field burning. Because of this diversity, the state was partitioned into different levels or tiers of smoke management. Kootenai and Benewah Counties were recognized for their long-running history of smoke management and the high level of concern that the public has expressed over this agronomic practice. These counties and the Sumps that have operated there were designated as a Tier III program based on a tiered design recommended by the USDA Agricultural Air Quality Task Force in a 1999 policy document[1]. In 2002, resources were directed to the Tier III program to advance smoke management to the highest level possible. Changes included state-of-the-art technology for forecasting smoke impacts and a detailed daily weather analysis during the burn season. Support for this emphasis on Kootenai and Benewah counties and for the program changes that were planned for the SMP came from the Governor's Office and was reinforced by the agency directors for DEQ and ISDA. The Governor stated in his State of the State address in January 2002, that another year of status quo for field burning in north Idaho was unacceptable and therefore some changes were necessary. The Director of DEQ was also a strong advocate for improving the burn decision process to include a downwind, receptor component in the weather analysis.

Key to this integration process was the Coeur d'Alene Tribe's desire and willingness to coordinate their SMP with the statewide SMP and support the recommendations provided by the state. This integration of programs created some significant complications that the CDA Tribe program had to resolve in a short amount of time during the burn season. A Memorandum of Agreement was developed and signed prior to the field burning season. This MOA provided a formal basis for the integration process. The goal of the integration effort was to develop a cohesive statewide program for managing smoke generated by agricultural burning and to minimize, as best possible, the impacts to adjacent communities from this activity.

The implementation of these changes to the existing SMPs was further complicated by a number of external factors in 2002. The growers in Kootenai and Benewah Counties faced a growing number of lawsuits that opponents to agricultural burning unleashed starting in February of 2002. These lawsuits and the concern about continued public health threats from smoke impacts prompted the US EPA

[1]Air Quality Policy on Agricultural Burning – Recommendations from the Agricultural Air Quality Task Force, November 10, 1999. USDA

regional office to become closely involved in the implementation of the SMP. EPA threatened the use of their emergency powers authority (Section 303 of the Clean Air Act) which allows the EPA Regional Administrator to stop a source of pollution which presents an imminent and substantial endangerment to public health, welfare or the environment. This threat of a 303 action by EPA weighed heavily on the SMP and the growers as the field burning season approached.

Program Description

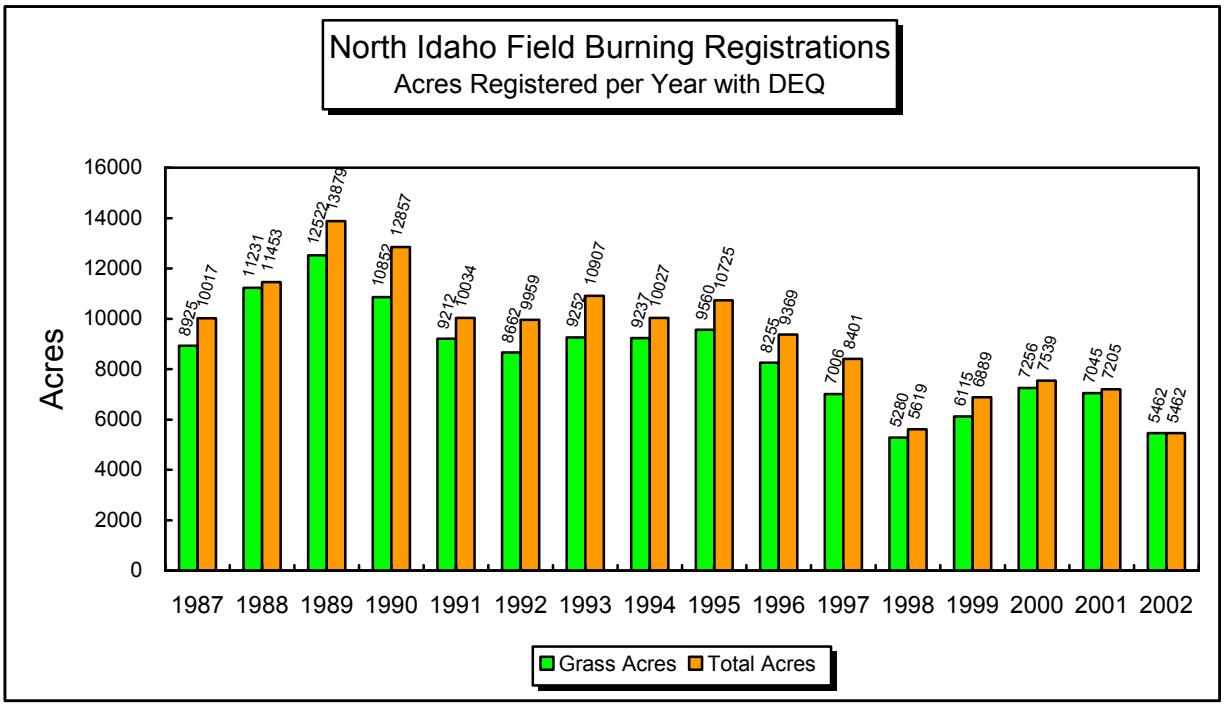
The smoke management program for agricultural burning in Kootenai County outside of the Coeur d'Alene Indian Reservation is described in detail in the 2002 Kootenai County Field Burning Smoke Management Plan (Appendix 6). This plan is updated annually and was signed in July 2002 by the ISDA, the DEQ, the Idaho Smoke Management Advisory Board, and the North Idaho Farmers Association. The plan describes daily operations, responsibilities of the various agencies and entities, and the integration of local program into the statewide program.

The Coeur d'Alene Tribe SMP regulates agricultural field burning within the boundaries of the reservation pursuant to the Coeur d'Alene Tribal Law and Order Code and Tribal Resolutions. The CDA Tribal SMP is designed to allow agricultural field burning to occur in such a way that particulate matter levels established by the USEPA under the Federal Clean Air Act are not exceeded. The Coeur d'Alene Tribe SMP has been in operation since the late 1980's. Updates are made to the plan periodically to address changes in the overall program. The CDA Tribal SMP divides the reservation into three separate zones based on local topography. There are also special "impact zones" near towns to keep smoke from impacting populations, and bordering major roads to provide additional safety for the traveling public. This SMP requires participants to obtain a tribal burn permit. The SMP further imposes monetary penalties for violations of the plan. The MOA between the Coeur d'Alene Tribe, the DEQ, and the ISDA provided a mechanism for the Tribe to coordinate its SMP with the Rathdrum Prairie SMP and the statewide program.

Registration. Growers in Kootenai County are required to register their fields with the DEQ prior to the start of burning. This registration requirement is similar to the ISDA registration requirement in the statewide rules. The Kootenai County growers are also required to pay a $1.00 per acre registration fee to DEQ for all acres planned for burning. This fee requirement is not in the statewide rules but is found in the Idaho Code (§22-4804). In 2002, growers registered 5,462 acres of turf grass in Kootenai County. No other classes of fields or crop types were registered. The 2002 registered acres is a continuation of a downward trend in acres from 2000 and 2001 when growers registered 7,256 and 7,045 acres, respectively, of turf grass (Figure 1). The lowest year on record is 1998, when growers registered only 5,280 acres of turf grass. The highest year on record is 1989, when 12,522 acres of grass were registered.

Within the reservation boundaries, the Coeur d'Alene Tribe also has a registration requirement as part of their smoke management program. Growers on the reservation are required to pay a $2.00 per acre fee to the Coeur d'Alene Tribe prior to burning their fields. The Coeur d'Alene Tribe has documented a significant increase in grass seed production over the past five years. Approximately 30,000 acres of grass seed are grown on the reservation. Growers are also required to register other crop types that are planned for field burning such as small-grain cereal crops. Historically, around 2,000 acres of cereal grain are also registered annually.

Figure 1. Acres Registered in Kootenai County for agricultural burning



Burn Days. Based on historical operation of the SMP, burning is limited to Monday through Thursday in Kootenai County. In contrast with the statewide rules, burning is not allowed on Fridays except for re-burning after the Labor Day weekend. The number of burn days is also limited to fourteen days in Kootenai County. The statewide rules have no limit on the number of burn days. This limit of fourteen burn days also has a historical precedent and growers typically were able to get all the burning done in less than fourteen days.

A burn day is defined in the ISDA rules (IDAPA 02.06.16.010) as "a period of time when meteorological conditions are conducive to adequate smoke dispersion and when the burning of crop residue would not likely exceed National Ambient Air Quality Standards." Burn days are determined by the ISDA on a county-by-county basis. In 2002, the ISDA hired staff to act as local field coordinators on the Rathdrum Prairie in Kootenai County. The local field coordinators worked cooperatively with the Coeur d'Alene Tribe and the statewide coordinator to make burn day decisions for fields in Kootenai County. The preferred burn prescription for fields on the Rathdrum Prairie requires a very specific set of meteorological conditions. Waiting for that preferred prescription, which would hopefully minimize downwind smoke impacts, often resulted in the local coordinator passing up days with good dispersion but winds from the wrong direction.

Local Weather Evaluation. The Rathdrum field coordinator collected upper-air profiles of wind speed and direction by releasing pilot balloons (pibals) on a daily basis. The balloons are tracked through the atmosphere with a theodolite; instrument measurements are recorded every minute for a 15 to 20-minute period. The field coordinator uses the data to develop a polar chart of the winds up to approximately 10,000 feet above ground level. This process starts at approximately 7:00 a.m. and is usually repeated every two hours throughout the morning, especially on burn days. The pibal data is very important for evaluating local weather conditions. The Rathdrum field coordinator shared this data with a large number of people including the Coeur d'Alene Tribe field coordinators who also released pibals at their site in Plummer. The Coeur d'Alene Tribe field coordinators emailed their pibal data to the Rathdrum coordinator so that each could evaluate and compare the upper-air profiles. Both sets of data were sent to the meteorological services contractor for inclusion in the morning weather forecast analysis.

Burn Day Forecasts and Recommendations. The state hired Meridian-Environmental Services (Meridian) to provide a twice-daily weather analysis across the state. Meridian used a wide range of information to conduct their analyses that were focusing on the ability of the atmosphere to disperse smoke. Meridian produced daily burn/no-burn recommendations on a county-by-county basis. As mentioned earlier, the state was divided into three tiers of smoke management. Tier I counties received a burn/no-burn decision with no limitations on time or acres. Tier II and Tier III counties had acreage limitations and designated time periods for each burn day recommendation. Meridian provided a forecast by 5:00 PM MDT for the following day; the next morning, they updated the forecast usually before 10:00 a.m. MDT. ISDA reviewed these daily recommendations and then posted a burn/no-burn decision on the ISDA website and their field burning phone line. These decisions from ISDA included Kootenai and Benewah Counties.

The local coordinators on the Rathdrum Prairie and the Coeur d'Alene Indian Reservation reviewed the burn/no-burn decisions each afternoon and morning. When a burn decision was given for either county, the field coordinators had to decide if the local conditions met their desired burn prescriptions. A final decision to burn or not burn was then made by the local coordinator. This final decision was transmitted by email to a large list of interested parties. Final approval of burn decisions and acreage was also posted on the ISDA Crop Residue Disposal website.

The Rathdrum Prairie and Coeur d'Alene Tribe coordinators also had to decide what portion of the Kootenai County acreage was allotted to either the Rathdrum Prairie or Reservation. This allocation was a source of confusion and frustration both to the growers and the public. An email announcement was sent out each morning attempting to clarify the distribution of possible burn acres in Kootenai County. Usually the desired prescription for the Rathdrum Prairie was different than the desired burn prescription for fields in the north end of the Reservation. While the Rathdrum Prairie typically burned under a southwest wind pattern, the Coeur d'Alene Reservation preferred a northerly wind pattern (NW, N, or NE winds). However, on some burn days, both areas were competing for the available acres allocated to Kootenai County.

Real-time Ag-Burning Modeling Project. A new tool was introduced to the field burning coordinators as part of the Tier III program for Kootenai and Benewah Counties. The ClearSky model was developed as a method of using near real-time weather information to forecast the movement of smoke plumes from agricultural fields in these two counties. A team of researchers at Washington State University created the smoke dispersion model with guidance from DEQ and the field coordinators. It is a web-based model that allows multiple users(field coordinators) to input various burn scenarios and review simulations produced by the model.

The goal of this model was to provide the field coordinators with a method of predicting where the smoke would travel once it went beyond the coordinators line-of-sight. The model used the most recent weather forecast to move the smoke with predicted wind patterns. Burn scenarios were entered the afternoon before a forecasted burn day and the model produced simulations that were available for review early in the morning the following day.

Another goal for the ClearSky project was to provide a tool to the smoke managers to evaluate the capacity of the airshed to handle the smoke generated from planned agricultural burns. In addition to showing plume movement, the model also estimated $PM_{2.5}$ concentrations in the plume at the ground level. The field coordinators were able to enter different acreage scenarios to evaluate the capacity of the atmosphere to handle various amounts of smoke. This part of the model was never fully utilized due to data deficiencies in the emission characteristics for grass field burning. Much of the data input into the model were best guesses at the physical parameters used to characterize plume behavior and strength.

The WSU team acknowledged this deficiency at the start of the season and planned to refine the model performance as the season progressed.

The model was used by the field coordinators during the season. Delays in getting the model fully operational caused a delay in the start of the burn season on the Coeur d'Alene Indian Reservation. The uncertainty of the model, especially early in the season, meant that the coordinators gave the ClearSky information a lower priority in light of all the other information they processed to make a final burn decision. Confidence and reliability in the model grew during the season but various problems still cropped up unexpectedly along the way. This tool did provide some confidence to the coordinators when they were evaluating their pibal data for local wind direction and the model-generated simulations confirmed their predictions of where the smoke would travel. Key cities were identified in the model domain so the coordinators could evaluate the long-range transport of the smoke from approved burns.

More work is needed to improve the model performance and the smoke managers need more training on interpreting the modeling products. A post-season technical evaluation of the model performance will provide information for planning next year's program. A key issue for next year is having the model fully operational by July 1st to allow time for the field coordinators to test the functionality and performance. Other web-based regional models are also in development by EPA and a consortium of other users. These new models may assist with interstate coordination for agricultural burning and wildfire impacts.

Hotline Operation. As in previous years, a 24-hour hotline was established during the field burning season. This year, the hotline was designed to provide coverage for all of northern Idaho, from Idaho County to Boundary County. The hotline was also capable of receiving calls from outside the state including residents in Canada. Pass Word, a professional telephone answering service in the Coeur d'Alene/Spokane area operated the hotline for the state. A contract with Pass Word detailed the level of service provided and format of the information collected. Pass Word provided a local phone number and a toll-free number for people to call. Below are examples of the calls received and the type of information collected.

Complaint Call to 1-800-345-1007
NAME::DENA BLAND TAKEN: Mon 05-Aug-02 07:48p CKW
FONE::208-935-2989 DELIVERED: Mon 05-Aug-02 08:00p ptr
LOCATION.....
CITY::KAMIAH
STATE::IDAHO
COUNTY::LEWIS
COMMENT::DOES NOT LIKE THE BURNING BECAUSE THE SMOKE HOVERS IN THE VALLEY WHERE SHE LIVES AND MAKES IT HARDER FOR THE ELDERLY PEOPLE TP BREATH
CALL BACK REQ::(Y):YES (N):
REMAIN CONFIDENTIAL::(Y): (N):

Pro-burning Call to 1-800-345-1007
NAME::WALT REMITZ TAKEN: Tue 13-Aug-02 11:49a CMN
FONE::660-5230 DELIVERED: Tue 13-Aug-02 12:00p ptr
LOCATION.....
CITY::SANDPOINT
STATE::ID
COUNTY::BONNER
COMMENT::LET THE FARMERS BURN SO THEY CAN ENHANCE THEIR YIELD FOR NEXT YEAR. WHY ARE PEOPLE UNHAPPY ABOUT THE BURNING
CALL BACK REQ::(Y): (N):
REMAIN CONFIDENTIAL::(Y): (N):

The hotline calls were recorded and then faxed and emailed to a number of recipients throughout the burn season. The recipients included the Nez Perce Tribe, DEQ staff in Lewiston and Coeur d'Alene, the Coeur d'Alene Tribe, and ISDA staff in Boise, Lewiston, and Coeur d'Alene. At the beginning of the season, the calls were sent out in batches two or three times per day via email. By the end of the season, each call was emailed within minutes after Pass Word recorded the call. ISDA staff reviewed the calls daily and returned calls to all individuals that requested a call back.

Air Quality. Air quality concentrations were monitored at a number of locations during the burn season. Table 6 summarizes the location and type of information collected at each site. The air quality monitoring sites are operated and maintained by DEQ staff. TEOM are operated year-round and data is quality assured for submittal to the US EPA. The nephelometer sites are operated seasonally specifically for the field burning season. DEQ staff conduct routine quality control of the nephelometers but the data is not submitted to EPA, and therefore, the data undergoes less rigorous quality assurance review.

ISDA field staff on the Rathdrum Prairie are provided direct access via a computer and modem to all the real-time AQ sites listed above during the burn season. ISDA has dedicated a staff person to closely track the pollutant concentrations during each burn day. The instruments can provide instantaneous measurements of pollutants ($PM_{2.5}$ and PM10) as well as one-hour averages updated on the hour. A log of PM concentrations at the various locations is maintained by ISDA throughout the burn day.

Table 6. Description of Air Quality Monitoring Sites

Location	Pollutant Measured	Sample Method
Coeur d'Alene - Lakes Middle School	PM2.5 real-time PM10 real-time	PM2.5 TEOM PM10 TEOM
Post Falls - Syringa Well Site	PM2.5 real-time	PM2.5 TEOM
Sandpoint - Sandpoint Middle School	PM10 real-time	PM10 TEOM
Pinehurst - Pinehurst Elementary	PM2.5 real-time PM10 real-time	PM2.5 TEOM PM10 TEOM
Athol - City Athol Well Site North	PM 2.5 real-time	Nephelometer
Rathdrum - Avista Odorizer Station	PM 2.5 real-time	Nephelometer
North Hayden - Boekel Rd & Hwy 95	PM 2.5 real-time	Nephelometer
Fighting Creek - Kootenai Co. Landfill	PM 2.5 real-time	Nephelometer

TEOM: Tapered Element Oscillating Micro-balance, RP1400 AB
Nephelometer: Radiance Research M903 (correlated with PM2.5)

Trigger levels based on hourly $PM_{2.5}$ concentrations require specific actions by the field coordinators. The Kootenai County Smoke Management Plan has identified trigger levels at 60 and 80 ug/m3. The lower level requires the field coordinator to evaluate present conditions for continued burning. At 80 ug/m3 for a one-hour average, the field coordinator is required to stop the ignition of any new fields. The statewide temporary ISDA rules also identify a pollutant trigger level based on 80% of the one-hour emergency episode criteria level of 80 ug/m3 for a $PM_{2.5}$ hourly concentration. Therefore, under the ISDA rule, when hourly $PM_{2.5}$ concentrations of 64 ug/m3 are reached, "no new fires shall be ignited"

(IDAPA 02.06.16.500.02). These various trigger levels require tracking the pollutant levels closely in conjunction with the approved burns and weather conditions.

ISDA field coordinators are also provided data access at three meteorological stations operated by DEQ that provide real-time information on surface wind speed and direction as well as ambient temperature, pressure and relative humidity. The meteorological sites are located near Rathdrum, in Sandpoint, and in Pinehurst.

At the present, there are no real-time air quality monitors operating within the Reservation boundaries. Data from the monitor located at Fighting Creek, just north of the reservation, is shared with the Tribal field coordinators. Instead, the Tribal SMP relies on field staff observations, balloon launches coupled with theodolite tracking, a Pibal computer tracking program, and a radio network to manage the activity during a burn day. Staff are positioned at strategic observation points to watch the movement of the smoke plumes. If the smoke plumes shift due to changing weather conditions or the plume rise is not reaching the transport wind layer, the field coordinator will radio growers and discontinue burning. The field coordinators rely on their knowledge of the local weather patterns and the influence of the terrain and topography on smoke behavior to actively manage the amount of burning on burn days.

Tier III Discussion

Seasonal Weather. The smoke management program and field burning are very influenced by the seasonal weather patterns in north Idaho. During the field burning season, weather can vary from unseasonably cool and wet to hot, dry summers. Based on climate data maintained for the National Weather Service site in Spokane (WA), average monthly temperatures for August and September were slightly lower than the thirty-year average for each month. Total precipitation for each month was also considerably lower than the historical averages. An evaluation of the heating and cooling degree days seem to indicate that August and September were cooler than normal. Table 7 summarizes the 2002 climate data compared to the historical averages. Unfortunately, climate data for the Coeur d'Alene area is not readily available and there are likely differences between Spokane and Coeur d'Alene micro-climates.

Table 7. Climate Data from Spokane NWS Site

Parameter	August	September
Avg. Monthly Temperature, 2002	65.7 F	58.2 F
Historical Mean Monthly Temp	69.6 F	60.8 F
Total Monthly Precipitation	0.13 in	0.33 in
Historical Avg. Monthly Precip.	0.79 in	0.86 in
Heating Degree Day (base 65)	42	219
Historical Avg. HDD (base 65)	35	165
Cooling Degree Day (base 65)	70	24
Historical Avg. CDD (base 65)	177	39

Air Quality. Overall, air quality was measured by reference methods for $PM_{2.5}$ at sites in Coeur d'Alene, Post Falls, Sandpoint and Pinehurst. These sites collect samples of air quality for comparison to the National Ambient Air Quality Standards (NAAQS) on a predetermined schedule. $PM_{2.5}$ concentrations were measured on sixteen sample days during the third quarter period at the sites in Kootenai and Bonner Counties. The Pinehurst site operated at a higher sample frequency and collected 31 samples during the same period. From this combined set of samples, a total of six days corresponded with actual burn days in Kootenai or Benewah Counties. The $PM_{2.5}$ NAAQS is 65 ug/m3 for the 24-hour standard and 15 ug/m3 for the annual average. The highest 24-hour concentration measured during the third

quarter was 16.4 ug/m3 at the Pinehurst site on September 26. This corresponds with a burn day on the Reservation when growers burned 351 acres. All of the third quarter data is presented in Figure 2 below.

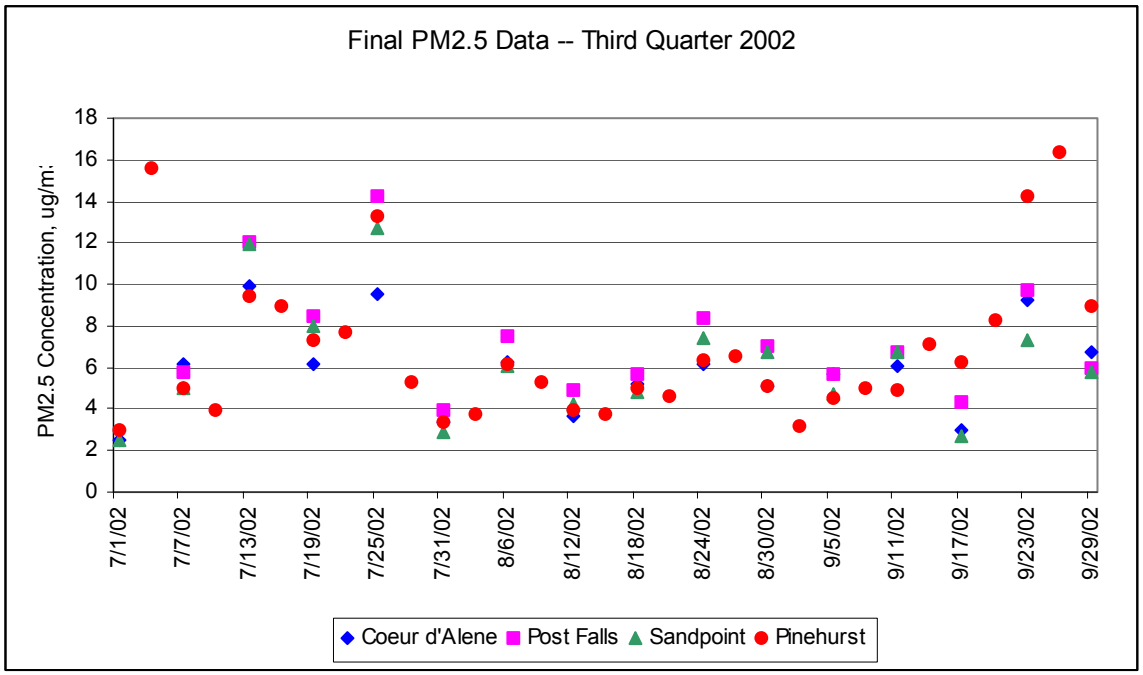


Figure 2. Third Quarter $PM_{2.5}$ Data from Sites in North Idaho.

During the 2002 field burning season, air quality concentrations were closely tracked by the ISDA Rathdrum Prairie field coordinator. Air quality concentrations were part of the decision making process that terminated field burning during some of the designated burn days.

On August 26, 2002 a total of 505 acres were burned between 11:30 AM and 1:45 PM PDT on the Rathdrum Prairie. The acreage recommendation from Meridian and confirmed by ISDA was 500 acres for Kootenai County with burn times between 11 AM to 3:00 PM PDT. All 500 acres were allocated to the Rathdrum Prairie, the Coeur d'Alene Tribal coordinator did not approve burning within the reservation in Kootenai County. $PM_{2.5}$ levels at the temporary nephelometer site in Athol reached a one-hour average of 95 ug/m3 at 2:00 PM PDT. As the concentrations rose, the decision was made by the local coordinator to shut down burning for the day at 1:45 PM PDT. The town of Athol and surrounding area was impacted by field burning smoke for approximately two hours when particulate matter levels peaked at 143 ug/m3 for the 3:00 PM one-hour average. The third highest one-hour average $PM_{2.5}$ reading for this site was 34 ug/m3 at 1:00 PM PDT on September 16 when 1,658 acres were burned on the Rathdrum Prairie.

A post-burn analysis of the weather conditions showed that a small disturbance occurred in the Athol area with cloud formation, scattered precipitation and ambient temperatures dropping slightly. This weather pattern may have caused a subsidence of cool air that pushed the smoke plume to the ground, impacting the north end of the prairie. This disturbance was not predicted in the earlier forecasts by Meridian or by the ClearSky model; but it was forecasted in the Univ. of Washington MM5 weather model (3-hour precipitation field).

The following graphs illustrate the changes in pollutant levels observed at the monitoring sites throughout the burn season. Burn days are shown with burn acres reported only for the Rathdrum Prairie burning. Impacts from burning in other locations such as the Coeur d'Alene Indian Reservation, wildfires or local activity also contribute to the fluctuations in the $PM_{2.5}$ and PM_{10} concentrations.

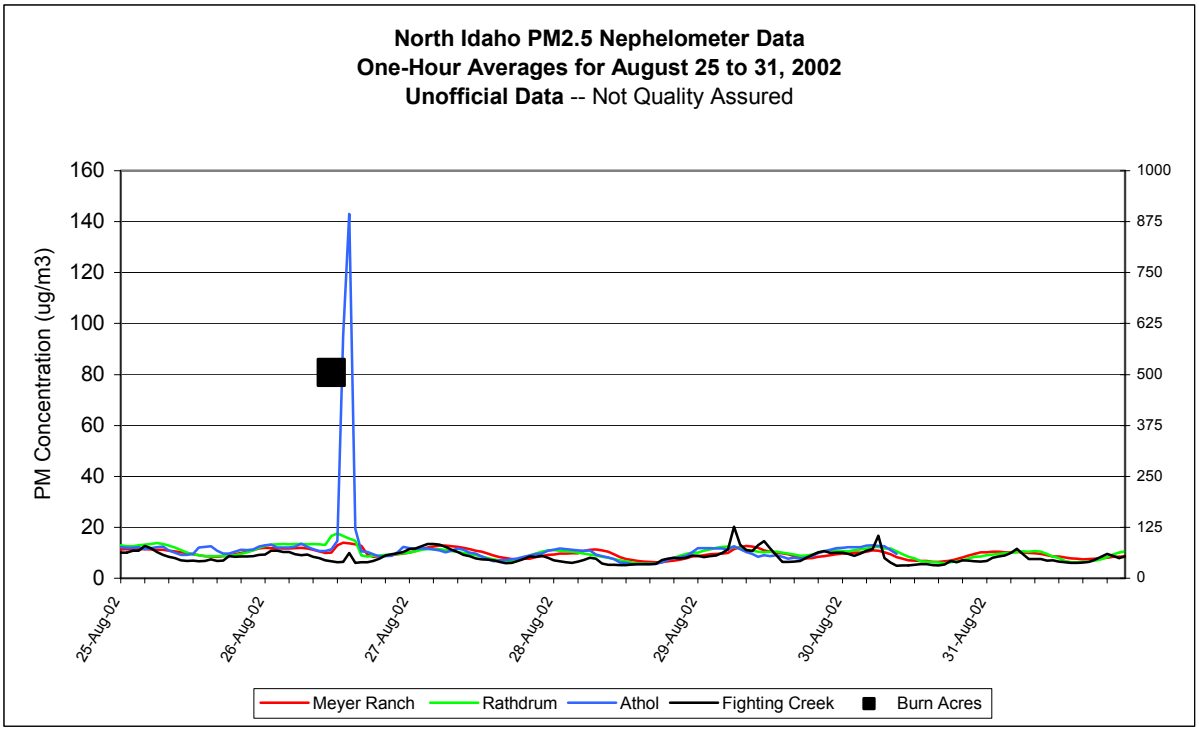


Figure 3. Hourly $PM_{2.5}$ Concentrations during Smoke Impacts in the Athol area.

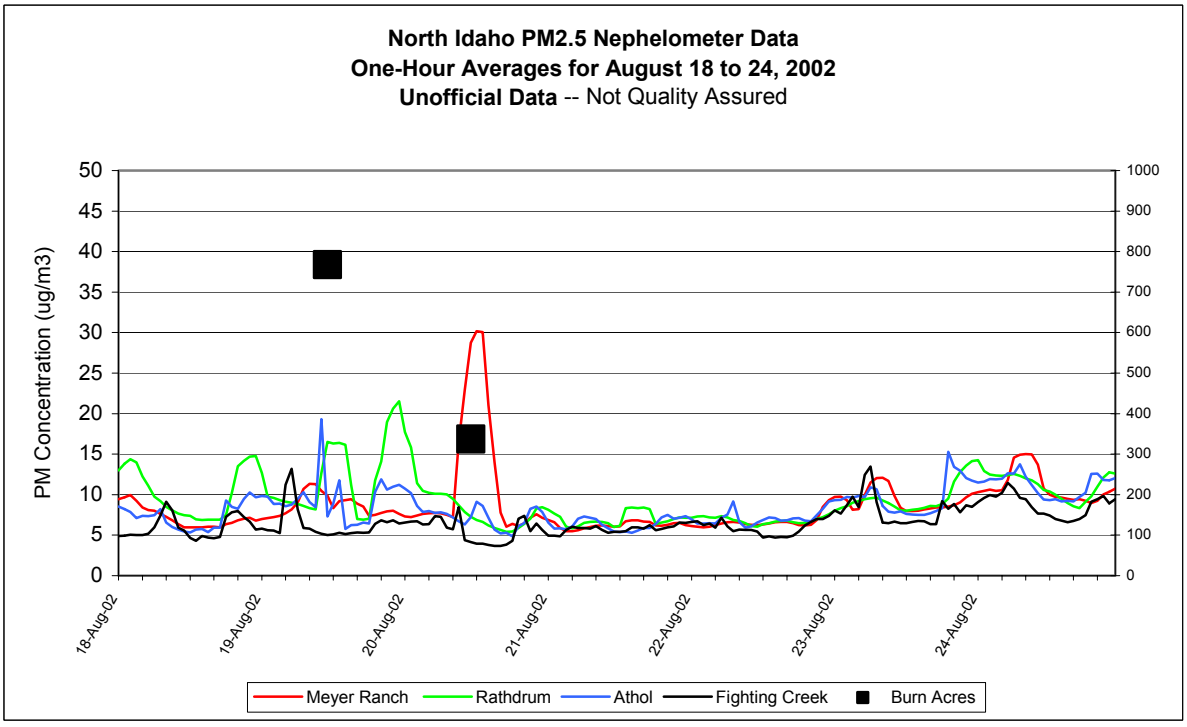


Figure 4. Hourly $PM_{2.5}$ Concentrations during Burning on the Rathdrum Prairie.

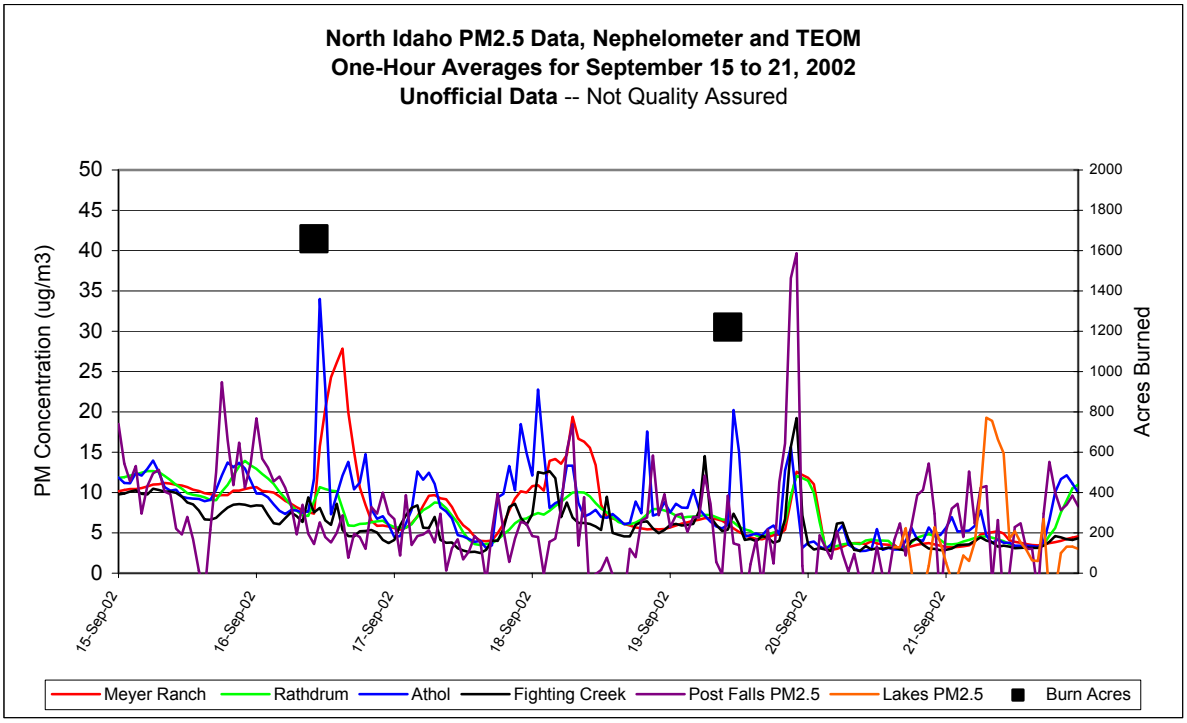


Figure 5. Hourly $PM_{2.5}$ Concentrations for the Third Week of September, 2002.

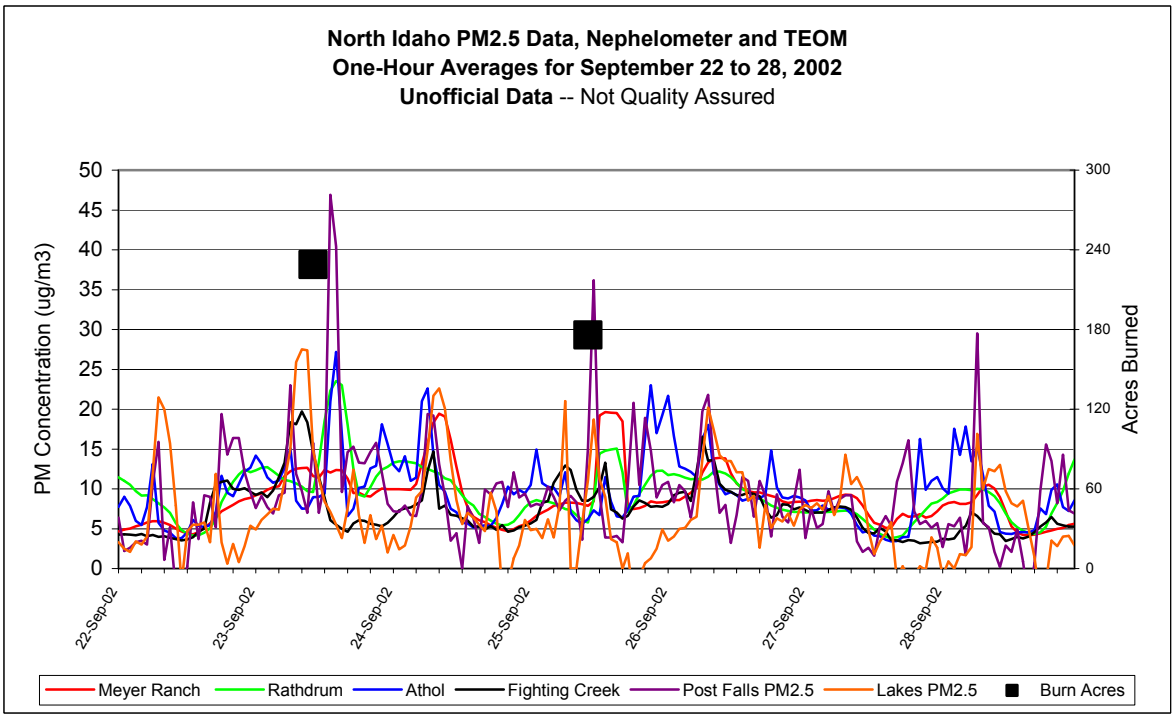


Figure 6. Hourly $PM_{2.5}$ Concentrations during the Last week of September.

Figures 3 through 6 only depict the particulate levels measured at each of the sites. One of the dilemmas this data presents is how well these individual sites represent other areas not presently monitored by real-time instrumentation. Complaint calls received by the hotline would indicate that smoke impacts are occurring at other locations, and particulate levels are likely higher in these areas than at the nearest monitoring site. This may be especially true in the small communities, other than

Sandpoint, that border Lake Pend Oreille, like Bayview, Hope, and Clark Fork. Large bodies of water can cool the air above the lake and create a subsidence effect in the atmosphere that will draw the smoke down to the surface. This phenomenon may contribute to the smoke impacts that occur in these areas when dispersion conditions over the Rathdrum Prairie area lead to burn days.

Burned Acres versus Recommendations. As described earlier for the Tier III area, ISDA used a number of different tools to determine burn days and the number of acres appropriate for burning per county for each burn day. The smoke management plan for the Tier III counties gives the local field coordinators the authority to recommend changes to the burn decisions and the number of acres. These changes are based on local observations, test fires and plume behavior, and measurements such as vertical wind profiles with the pibal balloons. Prior to the burn season, a flow chart was developed that outlined the decision making process for the local field coordinators. This flow chart is found in the 2002 Kootenai County SMP in the appendices of this report.

On August 2, the ISDA started to post detailed burn decisions for Kootenai and Benewah Counties with hourly ventilation ratings and recommended burn acres. Local field coordinators used this information to make final burn decisions for the specific areas they were managing such as the Rathdrum Prairie or the Coeur d'Alene Indian Reservation. Thus if a burn day was called for Kootenai County, it could result in four different outcomes. Local conditions may not meet the desired prescription for northern portion of the Reservation but favorable for the Rathdrum Prairie area. Likewise, the reverse situation could occur, favorable conditions for the portion of the Coeur d'Alene Reservation in Kootenai County and no burning on the Rathdrum Prairie. Local conditions could also result in that neither area would approve burning. And finally, both areas could burn on a Kootenai County burn day, if the conditions were right. Both smoke management programs had to share the Kootenai County acreage allotment. This demanded greater cooperation and coordination between the two programs in approving and allocating burn acreage to their respective growers. It also made the public notification process more difficult when describing where burning was likely to occur on any given burn day for Kootenai County. Below is an example of an email message that was used to describe the daily burn decision.

> Tuesday, August 20, 2002 (email message from Dan Redline, IDEQ)
>
> The Rathdrum Prairie ISDA coordinator determined that local conditions are appropriate for field burning and has authorized burning for selected fields on the Rathdrum Prairie in Kootenai County. Burn times are recommended from 10:30 AM to 2:00 PM. Burning is authorized for 300 acres and is subject to change depending on weather conditions.
>
> The Coeur d'Alene Tribe smoke management coordinator has authorized field burning for today for fields in Kootenai and Benewah Counties within the reservation boundaries. Burning is limited to 300 acres in Kootenai County and 550 acres in Benewah County. Burn time is from 10:30 AM to 2:00 PM.

On August 20, ISDA recommended 600 acres for Kootenai County and 550 acres for Benewah County. As described in the email message above, 300 acres was allocated for the Rathdrum Prairie and 300 acres for growers within the Coeur d'Alene Reservation in Kootenai County. This was the first burn day of the season when both areas burned on the same day. At the end of the day, growers on the Rathdrum Prairie had burned 337 acres and growers within the reservation had burned 571 acres in Kootenai County and 439 acres in Benewah County for a total of 1,010 acres within the Reservation.

Throughout the month of August, the field coordinators used the county acreage recommendations and approved fields that would reasonably match the allocations for each area. The field coordinators had the discretion to add more fields if conditions were appropriate. They also had the authority to limit burning below the acreage allocation if weather conditions changed.

From August 30 to September 12, no field burning occurred due to a court ordered injunction that imposed additional requirements on the majority of growers in Kootenai and Benewah counties. When the court order was lifted on September 13, there was still a large number of acres waiting to be burned and a short time period to accomplish the work. This situation put a tremendous amount of pressure on the programs and the field coordinators to provide more opportunities for burning. For the remaining burn days in September, the field coordinators had a greater tendency to approve more acres for burning than the recommended acres provided by ISDA. On September 16, ISDA recommended 1000 acres for Kootenai County and 1000 acres for Benewah County. The field coordinators split the Kootenai County allotment between the two programs. By the end of the day, the field coordinator for the Rathdrum Prairie had approved 1,658 acres for burning on the Rathdrum Prairie. Within the Reservation, the field coordinators approved burning on 1,644 acres with 574 acres in Kootenai County and 1,070 acres in Benewah County.

During the last week of September, the field coordinators also used their experience and knowledge of local weather conditions to approve field burning on days designated by ISDA as a no-burn day. These burn approvals were done in coordination with ISDA and usually done on a limited basis with case-by-case approval for each field.

Tables 8 and 9 provide a monthly summary of the daily burn recommendations, the actual acres burned, and the number of calls to the hotline.

Table 8. Summary of Burn Day for August 2002

August 2002	*Acres Recommended/Acres Actually Burned*					
Date Day	**Recommendation**		**Rathdrum Prairie**	**CDA Indian Reservation**	**Hotline Calls**	**Comments**
	Kootenai County	**Benewah County**				
08/01 Thursday	No Burn				3	ISDA burn decision
08/02 Friday	600	600			1	
08/03 Saturday						
08/04 Sunday						
08/05 Monday	150	200			2	Tier III SMP not fully operational
08/06 Tuesday	300	300			3	Tier III SMP not fully operational
08/07 Wednesday	200	300			11	Tier III SMP not fully operational
08/08 Thursday	850	900			11	Tier III SMP not fully operational
08/09 Friday	1000	1000			11	
08/10 Saturday						
08/11 Sunday						
08/12 Monday	200	300	No Burn	557	4	ClearSky Model operational
08/13 Tuesday	300	500	No Burn	367	18	NW winds
08/14 Wednesday	500	500	No Burn	1184	10	10 ac. Test Burn on RP
08/15 Thursday	600	700	No Burn	259	15	
08/16 Friday	700	700			14	NW winds, Red flag warning
08/17 Saturday						
08/18 Sunday						
08/19 Monday	600	600	768	No Burn	131	
08/20 Tuesday	600	550	337	1010	128	
08/21 Wednesday	No Burn	No Burn	No Burn	No Burn	31	2 ac. Test burn on RP
08/22 Thursday	No Burn	No Burn	No Burn	185	14	
08/23 Friday	No Burn	No Burn			7	
08/24 Saturday						
08/25 Sunday						
08/26 Monday	500	500	505	392	181	
08/27 Tuesday	700	700	No Burn	1526	24	
08/28 Wednesday	1000	1000	No Burn	1934	12	
08/29 Thursday	No Burn	No Burn	No Burn	No Burn	9	
08/30 Friday	No Burn	No Burn			7	Injunction Order issued for baling
08/31 Saturday						

Table 9. Summary of Burn Days for September 2002

September 2002	*Acres Recommended/Acres Actually Burned*					
Date Day	**Recommendation**		**Rathdrum**	**CDA**	**Hotline**	
	Kootenai County	**Benewah County**	**Prairie**	**Indian Reservation**	**Calls**	**Comments**
09/01 Sunday						
09/02 Monday	Holiday				2	
09/03 Tuesday	No Burn	No Burn	No Burn	No Burn	4	
09/04 Wednesday	No Burn	No Burn	No Burn	No Burn	1	
09/05 Thursday	No Burn	No Burn	No Burn	No Burn	6	
09/06 Friday	No Burn	No Burn	No Burn		5	
09/07 Saturday						
09/08 Sunday						
09/09 Monday	250	250	0	0	1	No fields available to burn
09/10 Tuesday	300	300	0	70	3	No fields available to burn
09/11 Wednesday	500	400	0	0	2	No fields available to burn
09/12 Thursday	700	600	0	0	1	No fields available to burn
09/13 Friday	600	800			0	Injunction Order overturned by ISC
09/14 Saturday						
09/15 Sunday						
09/16 Monday	1000	1000	1658	1644	338	
09/17 Tuesday	500	500	No Burn	No Burn	45	Rain showers thru out day
09/18 Wednesday	600	600	No Burn	No Burn	8	Fields wet; ISMAB approves Friday's
09/19 Thursday	1000	1000	1220	1686	63	EPA tour of RP
09/20 Friday	900	800	0	3239	18	
09/21 Saturday						
09/22 Sunday						
09/23 Monday	No Burn	No Burn	229	No Burn	23	15 ac. Test burn on RP
09/24 Tuesday	700	800	No Burn	5342	10	
09/25 Wednesday	500	700	176	2106	23	Growers finished burning on RP
09/26 Thursday	No Burn	No Burn		351	4	
09/27 Friday	No Burn	No Burn		1551	2	Growers finished burning on CDA Res.
09/28 Saturday						
09/29 Sunday						
09/30 Monday	No Burn	No Burn		0		End of CDA Tribe burn program

Hotline Calls. The hotline was activated on July 20 and was terminated on October 4. The comments collected by the hotline operators reflect a wide range of public opinion about agricultural burning and the smoke impacts it can create. This makes it difficult to analyze the hotline information solely on the number of calls received. A meaningful evaluation of the hotline calls would require evaluating the content of each call and categorizing the information. For the purpose of this report, the calls were sorted to remove calls that were not related to activity within Kootenai or Benewah Counties. This excluded calls from Boundary County and British Columbia as well as calls from Latah, Idaho or other Tier II counties. The content of each call was then reviewed to determine if it was complaint oriented (opposed to field burning) or supported farming (pro-burning). Calls received on Saturdays or Sundays were fairly insignificant and were not included in the totals listed below. To simplify the analysis for this report, the calls were sorted by county or state and did not include the city location, if provided.

From July 20 through September 27, the hotline received a total of 1,283 calls associated with the operation of the Tier III SMP in Kootenai and Benewah counties. During the 2002 season, field burning started on August 12 and concluded on September 27. The hotline received 102 calls prior to the start of burning on August 12. On August 12, ISDA approved a burn day and growers burned 557 acres within the Coeur d'Alene Indian Reservation. The hotline received four calls that day. Refer to summary tables 8 and 9 above for a daily listing of acres and hotline calls.

During the five weeks of field burning that followed, the hotline received a total of 1,139 calls associated with the Tier III SMP. About 15% of these calls were recorded in favor of field burning and farming, while the remaining 85% were more complaint oriented. Kootenai County had 459 calls and Bonner County had 425 calls during the five weeks of field burning in the Tier III area. No county identification was given for 165 calls, but these were likely from Bonner or Kootenai County. Figure 7 shows the percent distribution of these calls by county location or state. From September 1st to September 15th, no field burning occurred due to a court ordered injunction. During this time period, the hotline received 42 calls; many of the calls were supportive of farming.

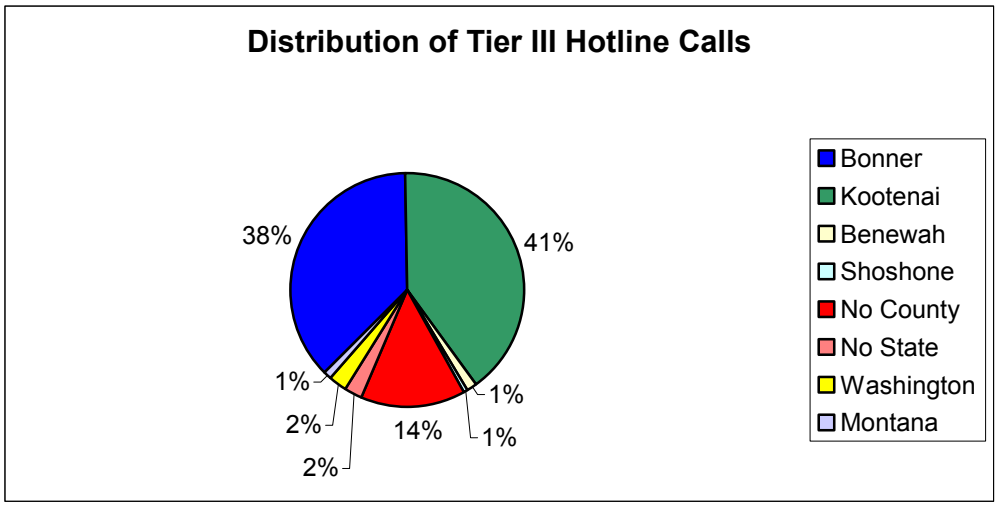


Figure 7. Origin of Tier III Hotline Calls during 2002 Burn Season

The hotline received the largest number of calls on Monday, September 16. On this designated burn day, growers burned 1,658 acres on the Rathdrum Prairie and 1,644 acres within the Coeur d'Alene Reservation. A total of 338 calls were made to the hotline on the 16th. Residents from Bonner County posted the greatest number with 206 calls, Kootenai County had 40 calls, 72 calls did not identify the county, and the remainder were from other surrounding areas. All of the calls were complaint oriented and varied in their description of the problem. The callers complained of health problems, reduced visibility, lost business, and poor air quality. Field burning started about 10 a.m.; from 1 p.m. to 3 p.m., the hotline received approximately 210 calls. No burning occurred on the following two days and the hotline recorded 53 more calls, most likely triggered by the burning on Monday.

The second highest number of calls was 181 received on Monday, August 26 when 505 acres were burned on the Rathdrum Prairie and 392 acres were burned on the Coeur d'Alene Reservation. The next highest day was on Monday, August 19, the first day of burning on the Rathdrum Prairie. The hotline received 131 calls and 768 acres were burned on the Rathdrum Prairie.

An evaluation of the call activity in conjunction with the amount and location of acres burned reveals that a larger number of calls are triggered by burning on the Rathdrum Prairie than by an equal or greater number of acres burned within the Coeur d'Alene Reservation. On days when only growers within the reservation were burning, the number of hotline calls is significantly lower than when growers on the Rathdrum Prairie are burning. The highest single burn day was on September 24 when 5,342 acres were burned within the reservation boundaries and the hotline recorded only 10 calls. The highest number of calls on a CDA Tribe burn day was on August 27 when the hotline received 24 calls and growers burned 1,526 acres. This is in sharp contrast the 131 calls received on August 19 when 768 acres were burned on the Rathdrum Prairie and no acres were burned within the Reservation boundaries.

A large number of the negative hotline calls received appeared to be triggered by any agricultural burning, regardless of the air quality impact. Based on the hotline comments, the sight of smoke plumes from burning fields also triggered many of the calls. The goal of the smoke management program is not to prevent the presence of a visible plume, but rather to insure that any smoke generated has sufficient "lift" to get away from the surface and then disperse in the transport winds without impacting citizens.

Recommendations for 2003 Tier III Program

1. Training

More training is needed for the field coordinators and program managers on the implementation of the smoke management program including website burn approval processes, ClearSky modeling interpretation, weather analysis and forecasting, field condition approval (residue dryness), communication protocols and record keeping.

2. Public Notification

One major criticisms of the program was the process of getting timely and accurate reporting on the location of burning, time of burns, the number of acres, and other important information to the public. More work is needed to improve communications with the public through a variety of media in order to get maximum coverage. These changes may include a telephone hotline with the daily burn decision, radio and television announcements of the burn decision and improved email notifications.

3. Complaint Response

The hotline service contractor demonstrated their capability to provide a near real-time response to each call received through their email messaging system. The field coordinators need to better utilize this information in their decision-making processes once burns are approved. An objective method of reviewing the calls and incorporating the information into the burn process is needed. This will help provide greater coverage of potential smoke impacts that are not feasible through the placement of air quality monitors.

4. Additional Air Quality Monitoring

Additional air quality monitoring sites are needed to evaluate ambient impacts especially in the downwind areas of the Coeur d'Alene Reservation burning. The Coeur d'Alene Tribe and DEQ may need to further their existing agreements to provide appropriate resources for more monitoring sites. Additional air quality monitors in downwind areas may also provide valuable information to the ClearSky Project and improve model performance for smoke forecasting.

5. Downwind Observation Points

Have field coordinators, especially on the Rathdrum Prairie, use observation points to track downwind plume movement during burn days. This may help minimize downwind smoke impacts especially in areas that don't have real-time monitoring equipment.

6. Fire Management and Emission Reductions

Incorporate fire management practices into the smoke management program that can reduce emissions from burning. This may include promoting bale and burn techniques or other emission reduction techniques that are applicable to sensitive areas for traffic control, fire danger, or smoke impacts.

7. Adequate Funding

The responsible authorities and agencies must direct adequate resources to the program in advance of the burn season to allow time for proper planning and preparation. Starting the burn season unprepared or late are unacceptable conditions.

Statewide Program Discussion

For 2002, the agricultural smoke management plans across Idaho were integrated and cooperatively executed for the first time. One key guideline was that, *"the status quo was not good enough."* In a practical sense, this meant that the various agencies and tribal authorities would pool their resources and share expertise for the common good. It meant that the program would push beyond its traditional operating parameters and pursue innovations beyond any in existence.

In addition to integration, the other tangible improvements included:

- Additional SMP staff were hired by ISDA and the Nez Perce Tribe
- Advanced meteorological forecasting was extended to Kootenai and Benewah counties
- A Tier III level of program was developed for Kootenai and Benewah counties
    - a state of the art, smoke dispersion model was deployed
- Training was provided to the SMP Coordinators for using the advanced tools
- ISDA deployed a statewide information website containing critical SMP information
    - burn weather forecasts
    - field registration forms
    - daily burn prescriptions
- Efforts to inform the public about program operations were increased
- Weekly statewide meetings were held, one for the Coordinators, one for the EPA
    - these meetings advanced SMP operations and techniques for new staff
    - they also clarified operations for EPA who wanted closer connections to SMP

The program got off to a rough start. Many of the new staff were not on board and trained until August 1. Significant numbers of farmers in the Tier II and Tier III areas wanted to burn as early as mid-July. SMP staff training, though high quality, came so close to operational startup that field staff really did not have sufficient time to let their training sink in before fields began to burn. Some of the staff had practical experience with field burning but were new to the advanced meteorological tools, others were completely new to all processes; one person had significant experience with coordinating field burning. Though well intended, the SMP Coordinators mostly lacked for experience and needed closer supervision.

The meteorological forecasting service (Meridian) was ready to go when the farmers wanted to start burning. However, Meridian too had new staff working on the project. The forecast team and local SMP members had to fine-tune their interactions and interpretations while under pressure of actual program execution.

The new smoke-forecasting model (ClearSky) was not completely operational when some farmers in the Tier III area were ready to burn. DEQ insisted that field burning not commence until ClearSky was at least reasonably functional. This delayed field operations in North Idaho by an additional week. Much was made of this delay of course. However, in a very real sense, given the amount of time available from the time we decided that something like ClearSky was needed, the SMP and its contractor brought this totally new tool on line in a phenomenally short amount of time.

Legal actions against the growers in Kootenai and Benewah Counties also held up operations for almost two weeks (Aug. 30 – Sept. 12).

Atmospheric conditions during August were anything but helpful. A high-pressure air mass set up over the Tier II and Tier III areas and wandered back and forth across Idaho's western boundary for weeks. These weather conditions, with the meager transport winds that predominated aloft, made liberal burning allowances impossible. There were weak thunderstorms interspersed throughout this period. Rainfall that accompanies such storms can adversely affect smoke management efforts in that rainfall

dramatically cools local air and can cause any dispersing smoke to be driven back to the ground. Growers have disputed that dispersion conditions throughout August were as poor as the forecasters indicated. It may be that the new forecasters at Meridian over emphasized the effects of the August thunderstorms. However, with the very inexperienced local SMP Coordinators, the program was not well situated to modify local operations in light of the overall forecasts. Hopefully, as the program builds the experience of local coordinators, such uncertainties can be eliminated. State agency and tribal staffs are meeting with Meridian and growers throughout the winter to better develop meteorological and burn decision protocols to improve and document these critical SMP functions.

Beyond the early season difficulties of starting off a newly restructured, litigation-distracted program, it's best to consider the three tiers of the SMP separately. The three tiers cover areas that differ significantly in agronomic practices; they differ in meteorological characteristics, and they have dissimilar social and political pressures.

Tier I covers all of southern Idaho plus Boundary and Bonner counties in northern Idaho. Significant portions of this area can be typified by a "laissez-faire" atmosphere. Significant numbers of the burners are not particularly interested in complying with the program; the agencies, strapped for resources, are forced to focus energy into the Tier II and Tier III areas. Plus, there is not a coordinated effort among local citizens to demand local programs similar to the northern areas. Canyon County stands apart from this discussion in southern Idaho. Significant acres were registered and burned under prescription in 2002 in Canyon County. However, the mid-Snake River counties appear quite under represented in acres registered and burned under prescription; plus, it is hard for anyone to believe that the upper-Snake River plain saw no field burning at all this past season. This situation is likely to persist until ISDA is given proper resources and options to deal with non-compliance. Necessary resources include more field staff to cover the Tier I area. A necessary option ISDA needs is true enforcement capacity in the form of penalty authority.

Boundary County stands apart from the Tier I conclusions here as well. Boundary County enjoyed a good start to the program this year. Because ISDA hired a new person for local coordination, many more fields were registered. There has been strong local community interest in a viable agricultural SMP as well. But Boundary County suffered under the poor dispersion conditions of August as well. Few acres were burned early in the season. Before the better dispersion conditions reappeared, the local SMP Coordinator resigned. Smoke management from Boise did not work well for Boundary County; late in the season and post season there was significant burning outside of the prescription. This experience was unfortunate, as the local area did not deserve these failures. It does raise a strong case in support of the value of local coordination and control. We strongly recommend that Boundary County deserves a Tier II level of program support as soon as possible.

The Tier II area (Clearwater Airshed) serves as the best example of recent improvements in SMP across Idaho. But it is only fair to acknowledge that this area enjoys definite advantages – some are simple blessings, others were brought about by the efforts of local growers, citizens, and authorities. The foremost advantages for the Clearwater Airshed are geographical and political. The area has a predominance of wide-open expanses which tend to be more forgiving under a given weather condition than would Kootenai and Benewah counties. Clearwater certainly has local challenges of canyons and nearby mountains; however, there is nowhere near the challenge of constrained topography as in the Rathdrum burn area. The communities in the Clearwater are more widely dispersed; smoke dispersal does not need to be so precisely executed. Finally, the Clearwater Airshed does not have the long history of contentious interaction between growers and the general population.

There were fewer complaints generated over agricultural smoke management in the Clearwater airshed this year, which suggests better operation of the SMP. However, growers certainly would have preferred more burning opportunities earlier and throughout the season. Lack of burning opportunity, or delayed burning, was probably not as negative this year as it might normally be, in that there was a concurrent

lack of rainfall. Without the rain, less green up occurred, which also meant less plant damage and less smoke when burning finally happened.

SMP operational staff is very aware that the program has to provide service in two directions. Air quality must be protected and the general population must find the SMP reasonably attentive to the public. Just the same, the SMP must achieve appropriate service to the growers. To accomplish this bimodal mission, the SMP must continue to push the quality and quantity of its operation. More resources are needed and those resources must be deployed better.

Next year, if the Clearwater Airshed could see an increase in real-time units, which are computer accessible, the SMP coordinators will have sufficient air quality data for their needs. There will always be communities who would like the assurance of a monitor in their neighborhood; certainly, SMP operators appreciate the objective information a monitor provides to gauge their activities. We must keep in mind though, that ambient monitoring is always the most expensive arm of air quality protection. Additional monitors come at disproportionate costs to other program activities. Additional monitors will be balanced against other critical SMP operational functions.

The remaining issues for future successful operations in the Clearwater Airshed are attributable to the amount and quality of resources available for local SMP implementation. There need to be more field staff, they need more thorough training, better computing functions, and better coordination among individuals and units must be achieved.

Too many calls for service from growers and the public currently occur for the amount of staff working the SMP in the Clearwater. Necessary analysis of appropriate meteorological information exceeds the local coordinators available time and computing capacity. Only more staff and better support equipment will solve this problem. Certainly additional staff is a given, but, there may be opportunities for different coordination arrangements to solve the computing dilemma. Better coordination and support between the State portions and the Nez Perce Tribe portions of the responsibilities to improve SMP service are also agreed upon objectives for the Clearwater Airshed. This agreement has been formalized in a specific MOA for next year.

Much has been discussed about local control of the SMP. This is certainly a long-standing objective in the Clearwater Airshed. Properly staffed and properly trained, the Local Coordinator function offers the best chance of success for the SMP. We recognize the shortcomings that occurred this past season related to local control and Coordinator function. Targeted and specific steps to improve this function are underway. ISDA is actively pursuing more financial resources. The Nez Perce Tribe is pursuing grants to continue their level of commitment. DEQ is shifting staff resources to better serve the evolving and maturing nature of the SMP. The SMP will focus on the best burn opportunities and forgo squeezing acres in on marginal days. A better system to communicate to the public and growers during the burn season will be implemented. Protocols for the meteorological services and improved utilization of meteorological information are being addressed in a specific project this winter and spring.

If the Clearwater Airshed is the hallmark of SMP in Idaho, the Tier III area of Kootenai and Benewah counties is certainly where we focused our greatest concerns and our greatest efforts for smoke management. This year's improvements included: moving from an industry run voluntary program to a regulation based agency run program, pooling Tribal, state, and federal resources and harmonizing authorities, plus developing and deploying the best weather forecasting and smoke dispersion estimations available. Local coordinating staff were expanded and provided training.

Two problems predominate (and persist) for the agricultural SMP in Kootenai and Benewah counties. There is a history of polarized relations between some local residents and the growers. This relationship has degraded to the point that numerous lawsuits have been filed to end the practice of grass field burning in these two counties. The second persistent issue is that local geographic features greatly limit

appropriate burning opportunities. At least for the Rathdrum Prairie, local communities crowded the growing area closely; plus, the topography is constraining to smoke dispersion and nearby large water bodies can often pull ventilating smoke plumes back to the surface. Because of these two persistent issues, we still can not objectively answer the questions whether or not field burning is socially acceptable and physically possible in this area. We had hoped to be closer to answering those questions with this past year's SMP efforts. Unfortunately, the way the burning season unfolded, that objective eluded us.

But this should not be conclusive for Northern Idaho. We can build on this year's improvements and push the SMP processes to higher performance. Too many good ideas and commitments are arrayed toward solving the agricultural smoke problems to give up now. The Coeur d' Alene Tribe cooperated with state and federal authorities to harmonize their program with the State's. EPA came forward with sizable funding support to advance smoke management techniques.

It should be noted that although Kootenai and Benewah Counties make up the Tier III category, there are significant differences between the two counties in potential smoke impacts due to population. Field burning in Benewah County occurs almost exclusively within the Coeur d'Alene Reservation, as does most of the burning in Kootenai County outside the Rathdrum Prairie. The number of people living in close proximity to the burning on the Reservation, in both Kootenai and Benewah Counties, is significantly less than the population surrounding the Rathdrum Prairie. The number of hot line calls resulting from burning within the Reservation were significantly less than from burning on the Rathdrum Prairie. The burning within Benewah County generated only one percent of the hot line calls as opposed to forty-one percent for Kootenai County.

Necessary improvements for the coming year center around resources. In the Tier III area, additional field staff must be deployed in the two county area, and north into Boundary County as well. These staff must be fully trained and practiced no later than July 1, 2003. The meteorological services contract should be continued, as well as the ClearSky Model contract. These resources are not fluff but basic to proper operations of the SMP, and are not cheap. To support these technical advancements and staffing enhancements within the project will not cost tens of thousands statewide, but hundreds of thousands in the coming years. If we are to succeed at agricultural smoke management, we cannot be shy about providing adequate resources.

One of this past season's critical improvements was the ClearSky Model. There has been considerable criticism voiced, that deployment of this tool delayed burning and that it was an experimental model. DEQ, and EPA scrambled to get a grant in place and appropriate technical resources organized to develop ClearSky. The development and deployment of ClearSky was accomplished on an exceedingly aggressive timeline. Idaho is lucky to have resources as close as Washington State University that are nationally recognized as experts in dispersion model development. No other team could have provided this product as fast. Regarding deployment of an experimental model, though true, there is a larger truth to acknowledge. The public trust in the effectiveness of agricultural smoke management in North Idaho was in such a precarious state, that extraordinary measures like deploying ClearSky within weeks rather than months was appropriate. As the burn season progressed, the function and use of ClearSky improved continuously. DEQ and EPA are presently negotiating to continue ClearSky for the 2003 burning season. Better coordination is needed between the agricultural community and the SMP coordinators to minimize conflicts and to communicate realistic expectations for program delivery.

Idaho must also provide for adequate control of the agricultural smoke management program. There were definite instances of lack of control last year. Proper control means that the local coordinators, not the growers, must make all critical decisions when burning is to proceed. Local coordinators cannot be timid about maintaining close and appropriate control; their positions serve both the growers and the public in general. Control also means that ISDA must have penalty authority to deal with obvious or flagrant violations of the Crop Residue Disposal Rules.

Statewide List of Recommended Improvements for 2003

1. Training.
More training is needed for the SMP Coordinators and program managers on the implementation of the smoke management program, including website burn approval processes, ClearSky modeling interpretation, weather analysis and forecasting, field condition approval (residue dryness), communication protocols, and record keeping.

2. Public Notification.
More work is needed to improve communications with the public through a variety of media in order to get maximum coverage.

3. Complaint Response.
The hotline service is capable of providing near real-time response to each call received through their email messaging system. The field coordinators need to better utilize this information in their decision-making processes once burns are approved. An objective method of reviewing the calls and incorporating the information into the burn process is needed. This will help provide greater coverage of potential smoke impacts that are not feasible through the placement of air quality monitors.

4. Additional Air Quality monitors.
Additional air quality monitoring sites are needed to evaluate ambient impacts especially in the downwind areas of the Coeur d'Alene Reservation burning. The Coeur d'Alene Tribe and DEQ may need to develop additional partnerships to provide appropriate resources for more monitoring sites. Additional air quality monitors in downwind areas may also provide valuable information to the ClearSky Project to improve model performance.

5. Adequate Funding.
Adequate resources directed to the program before the burn season are critical for proper planning and preparation. Missed opportunities due to lack of preparedness are probably not acceptable to the growers.

6. Continue Operations of Meteorological Forecasting Services and ClearSky Model.

APPENDIX 1

Agricultural SMP Three Tiers Defined

Tier I Plan Components:

1. Burn or No Burn days are designated daily. Designation of a particular date as a burn or no burn day is made by ISDA, and is based on recommendations from IDEQ air quality personnel, and Meridian Environmental (contract meteorologist). Burn recommendations are received the afternoon prior and updated as necessary early the next morning. Burn recommendations are posted in a dedicated web based program on the ISDA website and as a voice message on a toll free "grower hotline" housed at ISDA.
2. No burning of crop residue is allowed on weekends or holidays.
3. No limitations are placed on number of acres approved to be burned in a given county unless burning of that field would create an exceedance of National Ambient Air Quality Standards established by EPA as cited in Idaho's Rules Governing Crop Residue Disposal.

Tier II Plan Components:

1. Burn or No Burn days are designated daily. Designation of a particular date as a burn or no burn day is based made by ISDA based on recommendations from IDEQ air quality personnel, Meridian Environmental (contract meteorologist), and direct observation of local meteorological conditions by the ISDA local coordinator. Burn recommendations are received the afternoon prior and updated as necessary early the next morning.
2. No burning of crop residue is permitted on weekends or holidays.
3. Recommendations regarding hours when burning will be allowed and number of acres recommended to be burned are also provided. The actual acres approved to be burned in a given county may be more or less than the initial recommended acres. This adjustment in number of acres potentially approved to be burned is made based on real time monitor readings for the area, direct observation of fields being burned, and information gathered through weather balloon launches conducted on a daily basis.
4. The burn decision with the number of hours and initial number of acres are posted daily on the ISDA website and as a voice message on the toll free "grower hotline".
5. Approval to burn crop residue can be obtained through the local SMP coordinator identified for that area.

Tier III Plan Components:

1. Burn or No Burn days are designated daily. Designation of a particular date as a burn or no burn day is based made by ISDA based on recommendations from IDEQ air quality personnel, Meridian Environmental (contract meteorologist), evaluation of local meteorological conditions using the "ClearSky" model, and direct observation of local meteorological conditions by the ISDA local coordinator. Burn recommendations are received the afternoon prior and updated as necessary early the next morning. IDEQ and the North Idaho Smoke Management Advisory Board developed a flowchart outlining the burn decision procedures for Kootenai and Benewah counties for use in the Tier III area with input from ISDA and the Coeur d'Alene Tribe.
2. No burning of crop residue is permitted on Fridays, weekends or holidays.
3. Recommendations regarding hours when burning will be allowed and number of acres recommended to be burned are also provided. The actual acres approved to be burned in a given county may be more or less than the initial recommended acres. This adjustment in number of acres potentially approved to be burned is made based on real time monitor readings for the area, direct observation of fields being burned, and information gathered through weather balloon launches conducted on a daily basis.
4. Burn decision with hours and initial number of acres are posted daily on the ISDA website and as a voice message on the toll free "grower hotline".
5. Approval to burn crop residue can be obtained through the main office of ISDA in Boise, the local ISDA coordinator, or tribal authorities if the field is located within the exterior boundaries of the Coeur d'Alene Reservation.

APPENDIX 2

Rules Governing Crop Residue Disposal
(IDAPA 02.06.16)

IDAPA 02
TITLE 06
Chapter 16

02.06.16 - CROP RESIDUE DISPOSAL RULES

000. LEGAL AUTHORITY.
This Chapter is adopted under the legal authority of Section 22-4801, Idaho Code. (7-1-01)T

001. TITLE AND SCOPE.

01. Title. The title of this chapter is IDAPA 02.06.16, "Crop Residue Disposal Rules". (7-1-01)T

02. Scope. These rules provide procedures for: (7-1-01)T

a. Disposing of crop residue through burning; (7-1-01)T

b. Determination of burn or no burn days; (7-1-01)T

c. The registration of fields to be burned; (7-1-01)T

d. Crop residue burning time frame; and (7-1-01)T

e. Authority for the director to declare additional burn days. (7-1-01)T

002. WRITTEN INTERPRETATIONS.
There are no written interpretations of these rules. (7-1-01)T

003. ADMINISTRATIVE APPEAL.
There is no provision for administrative appeal before the Idaho State Department of Agriculture under this chapter. Hearing and appeal rights are pursuant to Title 67, Chapter 52, Idaho Code. (7-1-01)T

004. INCORPORATION BY REFERENCE.
IDAPA 02.06.16 does not incorporate any material by reference. (7-1-01)T

005. OFFICE -- OFFICE HOURS -- MAILING ADDRESS AND STREET ADDRESS.

01. Office Hours. Office hours are 8 a.m. to 5 p.m., Mountain Time, Monday through Friday, except holidays designated by the state of Idaho. (7-1-01)T

02. Mailing Address. The mailing address for the central office is Idaho State Department of Agriculture, P.0. Box 790, Boise, Idaho 83701. (7-1-01)T

03. Street Address. The central office of the Idaho State Department of Agriculture is located at 2270 Old Penitentiary Road, Boise, Idaho 83712. (7-1-01)T

006. PUBLIC RECORDS ACT COMPLIANCE.
These rules are public records available for inspection and copying at the department. (7-1-01)T

007. -- 009. (RESERVED).

010. DEFINITIONS.
The Idaho State Department of Agriculture adopts the definitions set forth in Section 22-4802, Idaho Code. In addition, as used in this chapter a burn day will be defined as a period of time when meteorological conditions are conducive to adequate smoke dispersion and when the burning of crop residue would not likely exceed National Ambient Air Quality Standards. (4-19-02)T

011. ABBREVIATIONS.

01. **IASGA**. Idaho Alfalfa Seed Growers Association. (7-1-01)T

02. **IDEQ**. Idaho Department of Environmental Quality. (7-1-01)T

03. **IEOSA**. Idaho Eastern Oregon Seed Association. (7-1-01)T

04. **IGP**. Idaho Grain Producers. (7-1-01)T

05. **IMGA**. Idaho Mint Growers Association. (7-1-01)T

06. **ISDA**. Idaho State Department of Agriculture. (7-1-01)T

07. **NIFA**. North Idaho Farmers' Association. (7-1-01)T

08. **NPGGA**. Nez Perce Prairie Grass Growers Association. (7-1-01)T

09. **USEPA**. United States Environmental Protection Agency. (7-1-01)T

012. FINDINGS.
NIFA, NPGGA, IGP, IMGA, IEOSA and IASGA have asked the ISDA and IDEQ to address the issue of crop residue disposal and smoke management. Idaho growers may lose fire as an essential tool in their best management practices if these rules are not adopted. The adoption of IDAPA 02.06.16, "Crop Residue Disposal Rules," will allow Idaho farmers to maintain the essential tool of fire, while minimizing the impact on the citizens of Idaho of smoke generated by crop residue burning. (7-1-01)T

013. -- 099. (RESERVED).

100. REGISTRATION OF FIELDS TO BE BURNED.

01. **Field Registration**. All persons in Idaho except in Benewah and Kootenai Counties shall register each field to be burned with ISDA prior to burning crop residue. (4-19-02)T

02. **Registration Forms**. Approved forms for registering fields may be obtained from offices of ISDA, IDEQ, County Extension Educators or Soil Conservation District offices. A single form is required for each person, however, more than one (1) field may be listed on a single form. County, township, range, and section for each field registered must be included on the registration form. Completed forms shall include permit numbers for any burning permits issued by county, state, or federal agencies, or local fire protection authorities. (4-19-02)T

03. **Perennial Crops**. It is not necessary to re-register annually each field of perennial crops to be burned after the initial registration. It shall be the responsibility of the grower to notify the ISDA when a field of perennial crop is taken out of production. (4-19-02)T

101. -- 199. (RESERVED).

200. DETERMINATION OF BURN OR NO BURN DAYS.

01. Designation Of Burn Days. The director or his designee shall designate for a given county burn or no burn days. (4-19-02)T

02. Daily Postings On Website. The department shall post daily on their website whether a given day is a burn or no burn day. (4-19-02)T

03. Time And Acres To Burn. The hours that burning shall be permitted, and the number of acres to be burned for a given county shall be based on local meteorological conditions and/or a test burn. (4-19-02)T

04. Toll Free Number. The department shall make available a toll free number to receive requests for information, requests for approval to burn crop residue, and will include an updated message designating a burn or no burn day in a given county. (4-19-02)T

201. -- 499. (RESERVED).

500. GENERAL PROVISIONS.
All persons in Idaho intending to dispose of crop residue through burning shall abide by the following provisions: (4-19-02)T

01. Exceedence Of NAAQS. All persons planning to burn crop residue in Idaho shall not burn if the NAAQS have been reached, are predicted to reach, and persist at a level that would result in an exceedence of NAAQS. (4-19-02)T

02. Cessation Of Burning. In conjunction with IDEQ rules, IDAPA 58.01.01, "Rules for the Control of Air Pollution in Idaho," Section 556, no new fires shall be ignited when particulate matter levels reach eighty percent (80%) of the one (1) hour action criteria for particulate matter of two and one-half (2.5) microns or less, and are predicted to remain above those levels. (4-19-02)T

03. Burning Prohibitions. Burning of crop residue shall not be conducted on weekends or federal or state holidays. (7-1-01)T

04. Designated Burn Day. Burning of crop residue shall not be conducted unless the department has designated that day a burn day. (7-1-01)T

05. Location Of Field Burning. Disposal of crop residue through burning shall be conducted in the field where it was generated. (7-1-01)T

06. Training Session. All persons intending to burn crop residue shall attend a crop residue burning training session provided by ISDA, and shall attend a crop residue disposal refresher training session every five (5) years. (4-19-02)T

07. Air Stagnation Advisory. All field burning shall be prohibited during an IDEQ air stagnation advisory. (7-1-01)T

08. Reporting To ISDA. All persons burning crop residue in Idaho shall first obtain approval to burn prior to field ignition. All persons burning crop residue shall also report to ISDA the date burning was conducted and the number of acres burned. (4-19-02)T

09. Burning Of Fields Adjacent To Roads. Burning of fields adjacent to roads and highways shall be approved on a case-by-case basis taking into account the time of day, field size and wind direction.(4-19-02)T

10. Additional Burning Permits. All persons intending to burn crop residue shall obtain any additional applicable permits from federal, state or local fire control authorities prior to receiving ISDA approval to burn crop residue. (4-19-02)T

501. – 799. (RESERVED).

800. ADDITIONAL BURN DAYS.
The director may declare additional burn days under special situations provided the burning of crop residue would not result in an exceedence of NAAQS. (4-19-02)T

801. -- 999. (RESERVED).

APPENDIX 3

Clearwater Airshed Agricultural SMP Operations Guide

Clearwater Airshed
Smoke Management Program
Operations Guide
2002

Purpose

This document identifies the roles and responsibilities of the Idaho Department of Environmental Quality (DEQ), Idaho State Department of Agriculture (ISDA), the Nez Perce Tribe (NPT), the Environmental Protection Agency (EPA), and local growers and industry to successfully implement an agricultural smoke management plan (SMP) within the Clearwater Airshed. Representatives from these groups, agencies, and governments agree to participate in Clearwater Airshed Advisory Groups. Members of the Clearwater Airshed Local Advisory Groups agree to meet annually to review and modify the guidance plan where necessary.

Recognizing that field burning is an agricultural tool to control disease, weeds and pests, remove crop residue, and for other agronomic reasons, the participants are dedicated to reducing smoke and the adverse public health and welfare[2] impacts of smoke generated by agricultural practices.

The objectives of this SMP are:

1. To minimize the generation and/or impact of smoke when prescribed burning is necessary.
2. To minimize emissions before, during and after the burn.
3. To prevent impacts which trigger the State's Emergency Episode Rule.
4. To utilize reasonable efforts to dissipate agricultural smoke in such a manner to assure that National Ambient Air Quality Standards (NAAQS) are not exceeded.
5. To minimize impacts of smoke in sensitive areas.
6. To address smoke transport issues through enhanced communication.
7. To develop and maintain a system to track acres burned.
8. To encourage and use alternative treatments where environmentally acceptable, technologically feasible, and economically reasonable.
9. To coordinate planning and outreach efforts of all participants to reasonably support all objectives of the smoke management plan.

To meet these objectives, participants need to help develop and abide with the smoke management program.

Introduction

This document is a guide to agricultural crop residue disposal smoke management program (SMP) for the State of Idaho and the Nez Perce Tribe (NPT) for the Clearwater Airshed. This guide is for all involved in agricultural smoke management and hopes to provide a concise overview of the smoke management operations process.

According to the recommendation of the Air Quality Policy on Agricultural Burning from the Agricultural Air Quality Task Force of the USDA, the most common reasons to burn are:

- to reduce harvest crop residues that inhibit tillage or soil preparation,
- to decrease the need for herbicide and pesticide application for pest and weed management,
- to provide stimulation for seed production required by crops such as bluegrass and promote substantial re-growth,
- to reduce fire hazard.[3]

[2] In section 302(h) of the Clean Air Act, welfare is described as "all language referring to effects on welfare includes, but is not limited to, effects on soil, water, crops, vegetation, manmade materials, animals, wildlife, weather, visibility, and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being, whether caused by transformation, conversion, or combination with other air pollutants."

Smoke is composed of particulate matter (PM), gases, and water vapor. Most of these particles are very small (2.5 microns or smaller, which is less than the diameter of a human hair). When inhaled, these small particles may lodge deep in the lungs and hinder oxygen from reaching the blood stream. The body cannot readily expel the particles so they may stay in the respiratory system for a prolonged time. Smoke-related health problems will depend on level of exposure, individual age and susceptibility, and other factors. Health risks associated with PM include worsening of asthma and other cardiopulmonary diseases. Healthy individuals will normally recover from smoke exposures and not suffer long-term consequences. However, prolonged or repeated exposure can make recovery lengthier. Certain sensitive populations such as those suffering from cardiopulmonary disease, children or the elderly, may experience more severe acute and chronic symptoms from smoke exposure and take longer to recover. More research is needed (and some of it is underway) to determine how particulate matter from fires affects these groups differently. For more information on the affects of smoke on sensitive populations read "Wildfire Smoke: A Guide for Public Health Officials."[4]

The National Ambient Air Quality Standards (NAAQS) are the standards used to decide if the air quality is degraded and therefore a health risk. EPA sets these standards; for PM2.5, the levels are 65 micrograms per cubic meter for 24-hour average and 15 micrograms per cubic meter annual average. However, these levels do not adequately cover short-term exposure risks. Idaho has an Emergency Episode Rule for PM2.5 set at a level of 80 micrograms per cubic meter, one-hour average, when stagnant meteorological conditions exist and the conditions are predicted to persist. For the purposes of smoke management in the Clearwater Airshed, the DEQ emergency rule (as well as the ISDA Crop Residue Disposal requirements) will be followed throughout the Airshed.

The Clearwater Airshed has developed an innovative approach to smoke management in an area of mixed geography, multiple jurisdictions and shared agency responsibilities. The high level of cooperation between ISDA, DEQ, the Nez Perce Tribe, EPA, local growers and industry make this smoke management program unique and progressive.

The goal of the smoke management program is to minimize the impacts of agricultural burning on air quality, public health and welfare, while allowing growers to use the management tool of fire. This is done through determining days of good ventilation and dispersion, limiting acres and hours when conditions are not optimal.

Geographic Details of the Clearwater Airshed

Clearwater Airshed generally encompasses the counties of Clearwater, Idaho, Latah, Lewis, and Nez Perce, the Nez Perce Reservation, and is subject to the jurisdictions of the State of Idaho, the Nez Perce Tribe, and EPA. The Clearwater Airshed is the northern portion of the USGS hydrologic sub-region called the Lower Snake. (*A map of the airshed can be found in Appendix A*).

Smoke Management Program Operations

The daily and seasonal operations of the SMP are handled by ISDA with assistance from DEQ, the NPT, and EPA. The operation of the SMP was initially developed over the 2001 pilot year of the program with ISDA and IDEQ. Working with the local advisory Crop Residue Disposal (CRD) committees, ISDA, DEQ, EPA, and NPT developed a series of operational procedures for the Clearwater Airshed. The following sections include the basics of the Clearwater Airshed SMP operation.

- Air Quality Management
- Agency Obligations
- Local Coordinators
- Grower Obligations
- Local Meteorology

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[3] Air Quality Policy on Agricultural Burning, recommendation from the Agricultural Air Quality Task Force, USDA, November 10, 1999.

[4] http://www2.state.id.us/deq/air/smoke/Wildfire_Smoke_Guide.pdf

- Regional Meteorology
- Monitoring and Background Air Quality
- Daily Burn Call Operations
- ISDA Crop Residue Disposal Website
- Registration and Training
- Approval Process
- Reporting
- Complaint Procedures
- Public Information and Outreach
- Websites for Additional Information

Air Quality Management

Our guiding principle is that air quality should not be allowed to degrade if reasonable control can maintain a higher level of air quality. This benefits everyone in the airshed; if saturation of the airshed does not occur then there will be greater opportunity for growers to accomplish necessary burning within a reasonable timeframe.

From experience we know that when designing a successful air quality management program, special attention must be paid to four issues:

1. **Local and Regional Meteorology**
2. **Background Air Quality**
3. **Source Strength**
4. **Control Measures**

"Meteorology" refers to the dispersion characteristics of the local and regional atmosphere. Close attention to meteorology allows us to predict the capacity of the atmosphere to disperse air pollution; this is critical to successful air quality management. We must have an awareness of local and regional atmospheric conditions to forecast how and where smoke will disperse. For the 2002 burn season from August through October, a meteorologist will be contracted to issue preliminary burn recommendations.

Local meteorological conditions of surface and upper air during a burn event determine if the smoke will rise and which direction it will go when it reaches the transport wind. If surface wind speed is too high (over 15 knots = 17 mph) the smoke will be pushed along the ground and not rise. If there is an inversion the smoke will only rise to the inversion and may settle back to the ground. The direction of the transport winds dictate if the smoke will move toward any sensitive receptors.

Regional meteorology allows us to understand what is developing on a larger scale in the Airshed. Regional meteorology helps us determine the type of conditions we may have before or after the burn event. It is important that adequate ventilation persist after the burn. If stable meteorological conditions will develop later in the day it will keep the smoke from dispersing properly. We can also adjust the burn prescription from morning to later in the day if morning conditions are not optimum and the Airshed may develop good dispersion later in the afternoon.

"Background air quality" refers to the recent and current air quality as measured by the monitors. It is essential to know where you are before starting toward a new goal or even when making routine adjustments to the program. Monitoring provides this background information. It also tells us how the airshed is responding to the smoke being added.

The Nez Perce Tribe and DEQ maintain a network of air quality monitoring sites in the Clearwater Airshed. These sites are well operated and maintained to meet federal requirements for data representativeness and reporting criteria. The sites include real-time instruments that measure Particulate Matter 2.5 (PM2.5) and at some sites, localized weather conditions. Location of the DEQ sites can be found on their website5.

[5] http://www2.state.id.us/deq/air/air1.htm. Also see the section in this document called "Monitoring and Background Air Quality" for more information.

"Source strength" refers to the amount of pollution entering the atmosphere during a fixed period of time from a given location or area. In the case of agricultural smoke management, we are talking about the number of acres burned each day in a particular airshed. Not only do the number of acres ignited each day need to be controlled, accurate reporting of acres actually burned is also essential. Knowledge of acres burned is vital to ensure that the smoke management team incorporates reasonable adjustments on a day-to-day basis.

"Control measures" refers to the ability to influence who is burning, how much, and when. It refers to program functions like outreach to growers so they know what is expected of them. It includes infrastructure like having sufficient field staff to provide a local presence to process registrations, get burn information out, and investigate complaints.

The smoke management plan (SMP) developed for the Clearwater Airshed has these four concepts incorporated into the management scheme. To understand these influences we must understand the jurisdiction and obligations of the agencies involved.

Agency Obligations

Several agencies have a role in smoke management and crop residue disposal in the Clearwater Airshed.

Idaho State Department of Agriculture (ISDA) is tasked with the authority to promulgate rules relating to crop residue burning in the State of Idaho. Idaho Code § 22-4801.

The *Idaho Department of Lands* (IDL) issues Special Use Permits for fire management purposes under Idaho's Forestry Act. Idaho Code § 38-115.

The *Nez Perce Tribe* (NPT) works closely with the Environmental Protection Agency (EPA) on agricultural smoke management for the Reservation. Consistent with their government-to-government relationship, NPT and EPA have entered into an agreement whereby the Tribe performs many of the functions involving implementation of the CAA.

The *Environmental Protection Agency* (EPA) has authority to implement the Clean Air Act within the exterior boundaries of the Nez Perce Indian Reservation and has established a Direct Implementation Cooperative Agreement with the NPT to develop and implement an agricultural smoke management plan for the Reservation.

The *Idaho Department of Environmental Quality* (DEQ) is the state agency responsible to safeguard air quality and limit and control the emission of air contaminants. Idaho Code § 39-105(3)(d).

Local Coordinators

In order for the Clearwater SMP to be successful at the local level, two local SMP coordinators will work with growers, one for ISDA and one for the NPT. The coordinators will work together to ensure that local conditions support burning. Growers should get to know their local coordinators; working closely with them can help to ensure a successful crop residue disposal season. See Appendix B, Guidelines for Local Agricultural SMP Coordinators, for more information.

Grower Obligations (Control Measures)

The growers are key to the success of the smoke management program. Their understanding of the program and their support are critical to the success of the SMP.

Growers are required to:

- ✓ Take ISDA training for burners,
- ✓ Register fields with ISDA (see Forms Appendix C),
- ✓ Phone in specific burn requests to ISDA at 1-866-224-2456,
- ✓ Obtain verbal approval from ISDA or the Tribe to burn for that day,
- ✓ Report back acres burned to local ISDA coordinator prior to receiving approval to burn additional acres,
- ✓ Provide adequate fire suppression,
- ✓ Burn only on designated burn days,
- ✓ Follow State- and Tribal-issued burn restrictions,
- ✓ Obtain all necessary permits from IDL, County, NPT and/or fire districts.

- ✓ Growers who lease tribally owned land within the exterior boundaries of the Nez Perce Reservation must also obtain a burn permit from the Nez Perce Tribe Land Services Program in Lapwai (208-843-7392). The Superintendent of the Bureau of Indian Affairs approves these burn permits. Growers must also obtain a fire permit from IDL. Only bluegrass crops are allowed to be burned on a regular basis. A copy of the Nez Perce Tribe bluegrass field burn permit is in Appendix C.

Local Meteorology

During the August through October burn season the NPT will launch balloons on the Camas Prairie every morning, except weekends and federal holidays, at approximately 7:00 AM. The operational procedure in Appendix D includes instructions for a two-person team. One person sets up the theodolite and balloon-filling system then fills the balloon. The second person sets up the data logger and readies the equipment to receive information from the temperature sonde (t-sonde). Once the equipment is ready, one person keeps time and records the reading while the other person follows the balloon and calls out the elevation and azimuth. Readings are taken every minute for a minimum of 20 minutes or until the balloon can no longer be seen. The entire process takes about two hours.

DEQ operates a meteorological tower in Moscow that measures wind speed, wind direction, and temperature. The NPT operates meteorological towers in Kamiah and Reubens. Data from other agencies' meteorological stations in Pullman, Lewiston, and Grangeville can be access via the web.

Regional Meteorology

Daily meteorological dispersion is forecasted by the contractor and reviewed by ISDA, DEQ and the NPT for the Clearwater Airshed. This information combined with the background air quality information, requested acres and other possible sources of smoke, such as wildfires, go into the determination of the burn decision.

Monitoring and Background Air Quality

DEQ operates three real time monitors near Grangeville, Lewiston and Moscow. These "TEOMs" measure PM2.5. The Nez Perce Tribe also operates TEOMs that measure PM2.5 located in Reubens and in Kamiah. The monitors are beneficial in many ways; they give us an idea of what the air quality has been previous to the burn days, they allow us to see if the current burn day is degrading the air quality, and they help to gauge any lingering effects of burning.

DEQ, NPT, and the meteorologist use this information to assist in the recommendation of good burn days, specific hours of adequate ventilation for each day, and the recommended number of acres and geographic limits of burn areas. See the meteorology sections in this document for more information.

DEQ and NPT will monitor the air quality and initiate air pollution emergency burn bans as well as enforcement of any violations of burn bans as per their jurisdictions. If the Airshed becomes saturated and there is the likelihood of air quality conditions becoming unhealthy and meteorological stagnation, DEQ can enforce a burn ban under the Emergency Episode Rule. DEQ will issue an Air Quality Advisory and notify ISDA to curtail burning. DEQ will also notify the NPT and EPA. For the purposes of SMP coordination in the Clearwater Airshed, DEQ's Emergency Episode Rule will also apply to the Nez Perce Reservation – if the rule is triggered, NPT and EPA will also curtail burning on the reservation. The local coordinators will contact the growers when a burn ban is issued.

Daily Burn Call Operations

Applicable to **All** Registered Fields (Grass and Cereal Grains):

1. In the morning, the contract meteorologist evaluates the local weather conditions utilizing various national and local weather information. During this time and throughout the day, the meteorologist has electronic access to DEQ and NPT monitoring data.

2. Based on the weather evaluation, pibal information, and current and previous air quality, the meteorologist decides if conditions are appropriate for good smoke dispersion. If local weather conditions are favorable, the meteorologist recommends a burn day plus the number of acres appropriate and the time to burn for each county (Latah, Nez Perce, Clearwater, Idaho, and Lewis). The meteorologist will also contact ISDA, DEQ and NPT each morning to provide a status update on conditions for burning. ISDA and the NPT then coordinate and designate which growers can begin field-burning operations. Daily burn/no-burn decisions will be posted on the ISDA website, and growers will be called if they can burn that day.

3. If the $PM_{2.5}$ concentration at any one of the monitoring sites reaches 60 ug/m3 for a one-hour average during the burn period, the ISDA and local coordinators will reevaluate the meteorological conditions for smoke dispersion and take necessary action to minimize further impacts.

4. If the $PM_{2.5}$ concentration at any one of the monitoring sites reaches 64 ug/m3 for a one-hour average during the burn period, all field burning will be curtailed and no additional fields allowed for burning for the rest of the day. Existing burns are allowed to burn out. The grower(s) may take additional action to increase the burn rate to complete an existing field burn(s) once a curtailment is announced.

5. At the recommendation of the meteorologist and an evaluation of the conditions it is the responsibility of the ISDA, the NPT and EPA, with the assistance of the local smoke coordinators, to make the decisions to limit or curtail field burning.

6. If weather conditions change and particulate levels drop below the trigger levels identified above, the ISDA, the NPT, EPA, and the local smoke coordinators have the discretion to decide whether to continue burning. The meteorologist will be available for consultation and make the call to halt burning.

7. On the morning following a burn day, the meteorologist will again evaluate the weather conditions for good smoke dispersion, the previous burn day events, and the current air quality conditions before providing recommendation to continue fielding burning that day.

To ensure good communication and coordination, it will be necessary for the burners to carry with them some type of communication device (such as a pager, radio or cellular phone) while in the field in the event a curtailment or suspension of burning is recommended for a period of time. Participants should have a contingency plan identified enabling them to reduce smoke emissions should a halt be called during a burn day.

ISDA Crop Disposal Website (Control Measures)

The meteorological contractor fills in a template with the hours, acres and ventilation recommendations for each day's burn calls. This information is posted to the ISDA website and is available to agency personnel and others wishing to be informed of the daily burn call. The general public and growers can also access the information on the website. In addition, growers have access to the information on the phone recording at 1-866-224-2456. The contractor's template and the ISDA website information are not authorizations to burn. Growers must obtain specific authorization from their local coordinators prior to field ignition.

Registration & Training

Registration forms can be found at ISDA offices (local and state), IDEQ Lewiston Regional Office, Idaho Department of Lands Offices, seed company offices, County Extension Educators, Soil Conservation District offices, the Nez Perce Tribe Land Services Program Office, and on ISDA's and the Tribe's websites[6,7]. Please see a copy of the forms in Appendix C.

ISDA will serve as the clearinghouse for field registration. Growers are encouraged to register all their fields early with ISDA, so the agency can begin building a database sufficient to plan that the acreage be burned in a coordinated manner. In the case of crops such as Kentucky bluegrass that do not change from year to year, the registration form does not need to be filled out annually; it will be assumed that the grower will repeatedly burn the field. A good practice for growers would be to keep a copy of the prior registration form and notify ISDA that the same fields will once again need to be entered into the system. If an annual crop is removed from a field ISDA should be notified of any changes and if the field will be burned in the current year. ISDA and the NPT maintain the data of acres and location of registered fields.

While conservation land does not require registration it is a good idea to let ISDA, the NPT, and the local authorities know when you plan to burn, and choose an approved burn day. Notification enables the agencies to appropriately adjust the numbers of acres allowed to be burned.

The ISDA website contains the grower hotline phone number, daily burn/no-burn call information, the CRD rules and registration forms.8

Burn training is provided through the pesticide program within ISDA. For more information please call (208) 332-8605. The training includes information such as the need for air pollution reduction, agricultural burning rules, burning techniques, burn/no-burn days and a burning checklist.

Approval Process (Control Measures and Source Strength)

When a grower is ready to burn his registered fields, the burner or his designee calls ISDA on the toll-free line 1-866-224-2456 or calls the local coordinator to submit a burn request for their preferred burn day. This can be done up to two (2) days in advance. When calling the following information will be requested of the burner:

- Grower name, address, phone, etc.,
- Legal description of field location (Township, Range and Section). The more information the quicker the decision can be made,
- Number of acres requested to be burned,
- The burner's assigned field number from the registration form,
- Class (type) of field: turf grass, cereal grain, or forage grasses.

On the day of the burn, growers must wait for approval from ISDA to burn. ISDA takes the recommendation from the meteorologist, DEQ, and the approval from the Nez Perce Tribe and EPA for within the reservation, and determines which fields will be given approval for that specific burn day. ISDA then responds directly to the burner and gives specific approval of fields, acres and times for burning. This method of approval is an important means to avoid the potential risk of igniting too many acres and overwhelming the Airshed's capacity to handle the smoke.

Reporting (Source Strength)

Reporting the amount of acres burned is a requirement of the ISDA CRD Rule and should be made within 24 hours to the local coordinator or to the same toll-free number as requests (1-866-224-2456). *This is a critical step in the process of determining if the program is working correctly.* Analyzing the time and number of acres burned allows the program to identify problem areas. It also summarizes

[6] http://www.agri.state.id.us/plants/BurnReq/CountySummary.aspx

[7] http://www.nezperce.org/Programs/land_services_program.htm

[8] http://www.agri.state.id.us/

how well the burn prescription predicted by the local SMP coordinators was met. If for some reason, such as unfavorable local conditions (e.g. high winds, precipitation), the total amount of requested acres are not burned and the burner would like approval for the next burn day to finish the acres, the caller should make this known to ISDA when reporting the amount of acres burned.

Complaint Procedures (Control Measures)

ISDA and DEQ, in coordination with the NPT and EPA, will establish and maintain a complaint line for the burn season. The toll free number to receive complaints and comments concerning field burning is: 1-866-345-1007. ISDA will respond to complaints outside reservation boundaries, and the NPT will respond to on-reservation complaints.

The objective of the complaint procedure is to ensure that the complainant is given the opportunity to express input to the program. Complaints provide valuable feedback as to the success of the forecast and burn conditions. When it is not an approved burn day the complaint can also help to identify non-compliance activities or problem areas.

The better the information obtained from a complainant the more able smoke managers are to assess the situation and troubleshoot problems. If the wind is blowing too hard and the model did not forecast high winds the model can then be adjusted. If it is not a burn day or it is after the allowed burn time, local smoke coordinators can establish if the fire in question was planned, an accident, or an out of control burn. Information collected from the complainant includes:

- Name and phone number,
- Location (address),
- Time of day and type of burn if known,
- Physical description of the location such as canyon or across the road,
- What is the problem can it be smelled, seen or both,
- How thick is it, and how long has it been in this condition.

Often callers are not aware that rules are in place, and that growers are required to register and get approval before burning. The initial contact is viewed as an opportunity to educate the caller on the smoke management program. This is also the chance to make sure the person feels that their frustrations have been heard and that they are important to the operation of the SMP.

Public Education and Outreach

The Clearwater Airshed members intend to coordinate outreach to the public and to the local media to inform and educate the public about smoke management issues within the Airshed. Callbacks requested by complainants are a good opportunity to provide such information. Information notices will be published in the Lewiston Morning Tribune, the Nez Perce Tribal Newspaper Tats Tito'ooqan, the Clearwater Progress, and in the Moscow-Pullman Daily Herald. DEQ, ISDA, and the NPT will coordinate on articles and notices submitted to these newspapers and to other media outlets, including radio and television. The grass growers and/or grain grower associations may also submit notices and articles to the media for public education.

Websites for Additional Information

ISDA website address
http://www.agri.state.id.us/Crop/crdinfo.htm

Pacific Northwest MM5 Weather Forecasts
http://www.atmos.washington.edu/mm5rt/indexall.html

Smoke and Dispersion Forecasts for Montana and Idaho
http://www.fs.fed.us/r1/fire/nrcc/Smoke_web_pages/forecast.htm

National Weather Service – Fire Weather
http://www.wrh.noaa.gov/spokane/fire.htm

Program for Fire Ecosystem and Fire Applications
http://www.cefa.dri.edu/

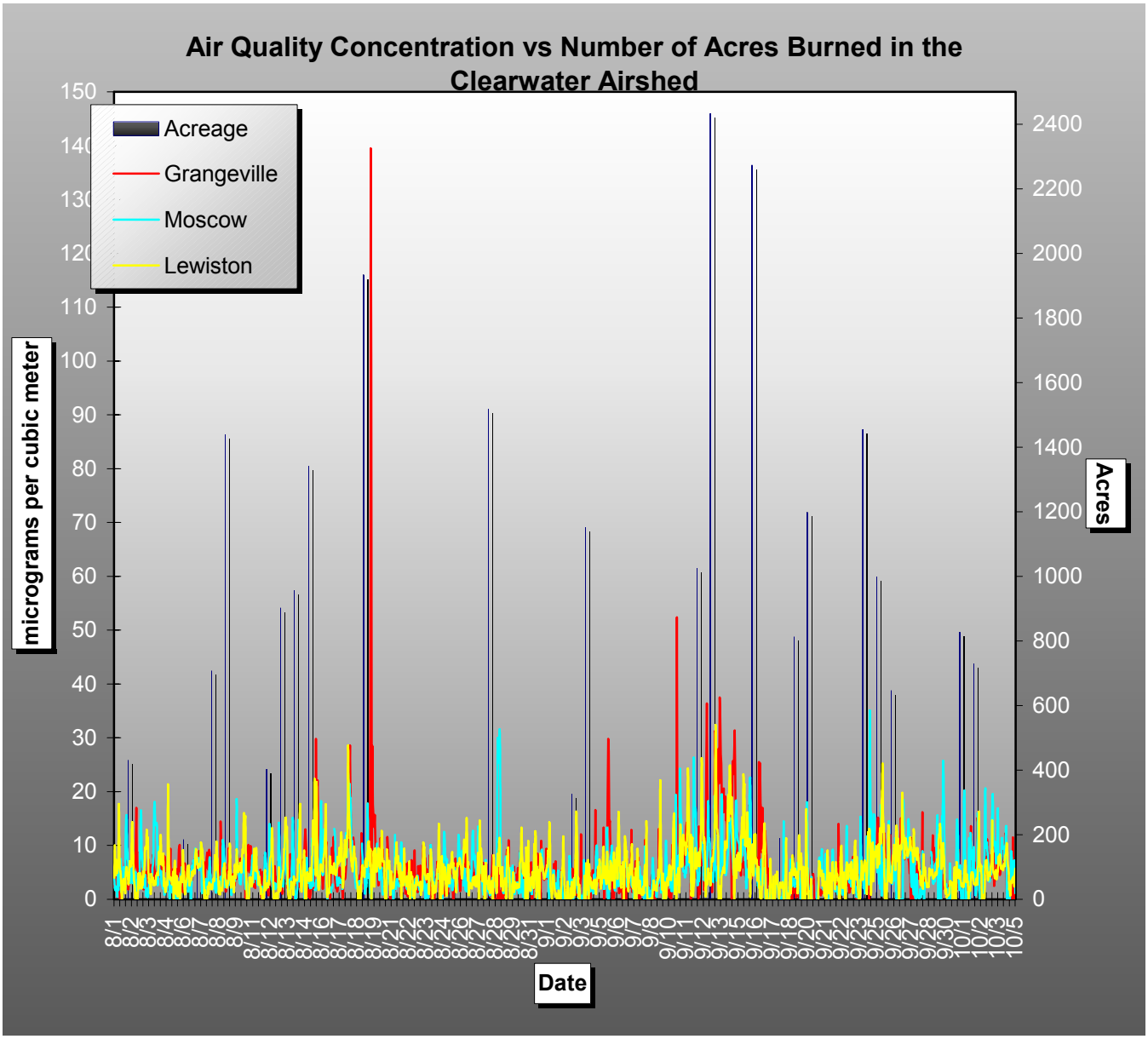
CEFA mixing heights
http://www.cefa.dri.edu/Operational_Products/NCEP_Exp/exp_index.htm

Most recent fires
http://nhis7.wwb.noaa.gov/website/SSDFire/viewer.htm
http://www.osei.noaa.gov/Events/Fires/US_Northwest/
http://www.fs.fed.us/r4/rsgis_fire/index.html

Washington state info, including wildfires and Pullman particulates data
http://www.ecy.wa.gov/programs/air/airhome.html

APPENDIX 4

Clearwater Airshed
Acres burned by date and particulate monitor readings
(August 1, 2002 through October 4, 2002).


Air Quality Concentration vs Number of Acres Burned in the Clearwater Airshed
Acreage
Grangeville
Moscow
Lewiston
micrograms per cubic meter
Acres
Date
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
8/1
8/2
8/3
8/4
8/7
8/8
8/9
8/11
8/13
8/14
8/16
8/17
8/18
8/19
8/21
8/22
8/23
8/24
8/26
8/27
8/28
8/29
8/31
9/1
9/2
9/3
9/5
9/6
9/7
9/8
9/10
9/11
9/12
9/13
9/15
9/16
9/17
9/18
9/20
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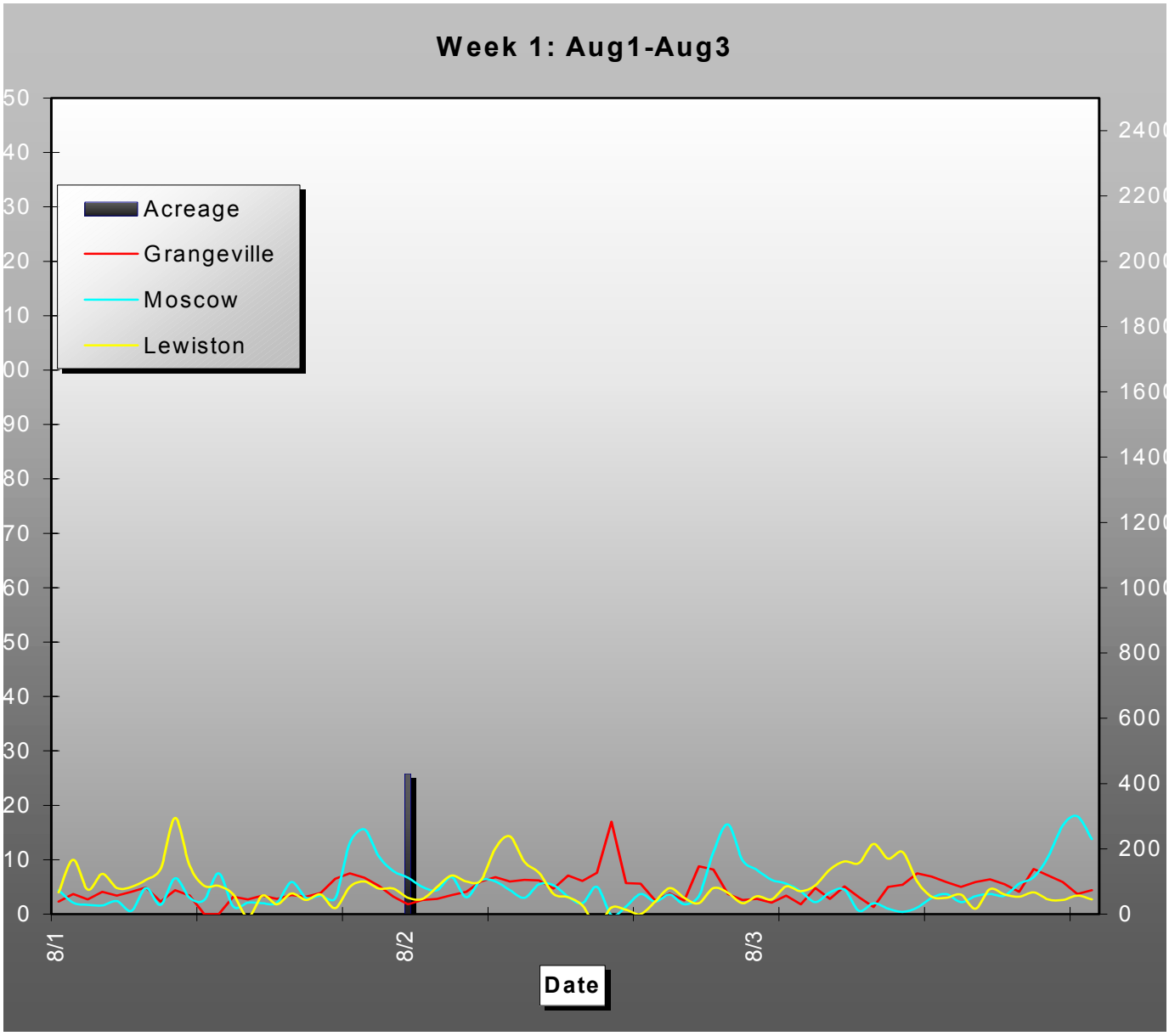
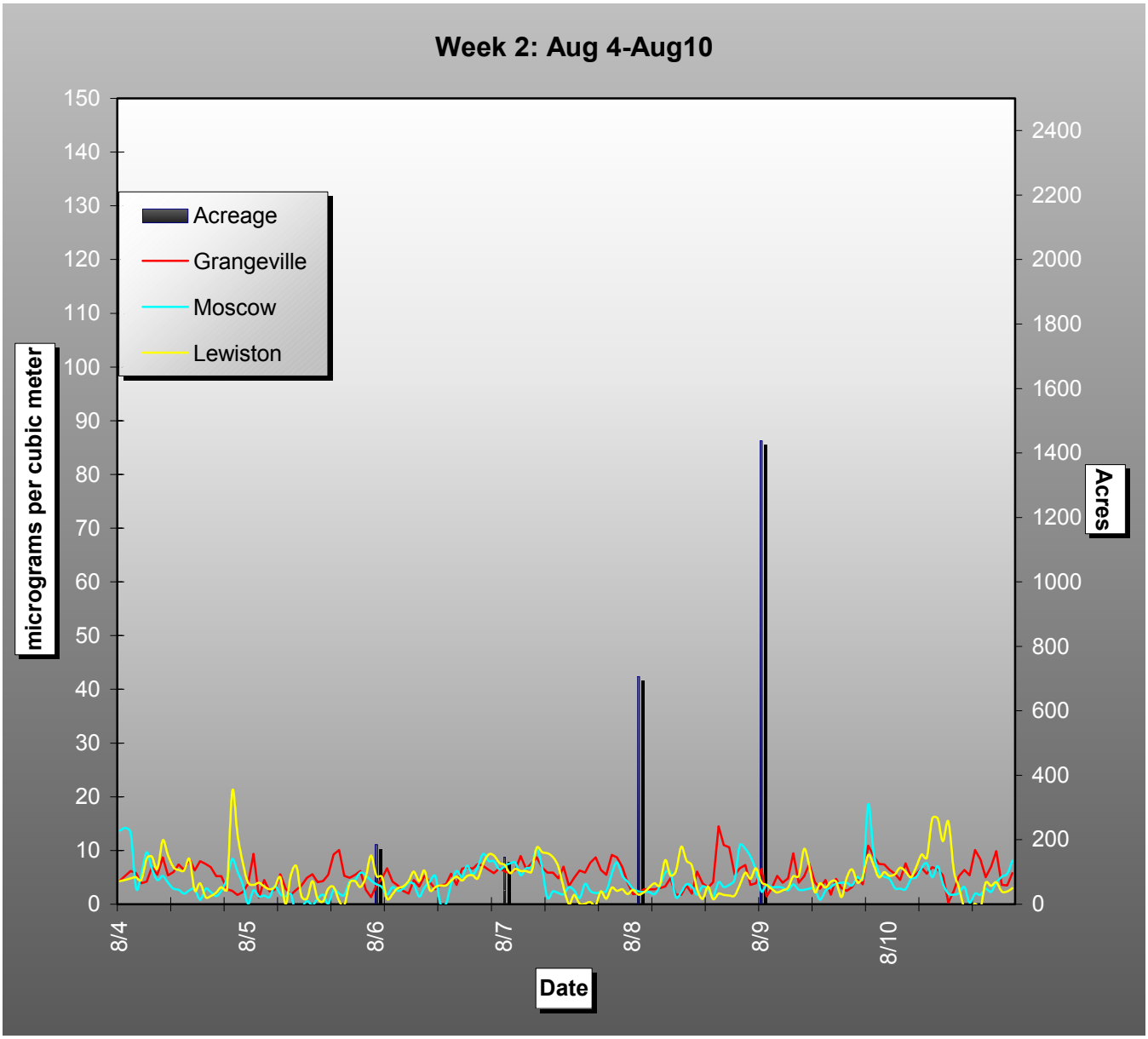
9/30
10/1
10/2
10/3
10/5


Week 1: Aug1-Aug3
Acreage
Grangeville
Moscow
Lewiston
50
40
30
20
10
00
90
80
70
60
50
40
30
20
10
0
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
8/1
8/2
8/3
Date


Week 2: Aug 4-Aug10
micrograms per cubic meter
Acres
Date
Acreage
Grangeville
Moscow
Lewiston
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
2400
2200
2000
1800
1600
1400
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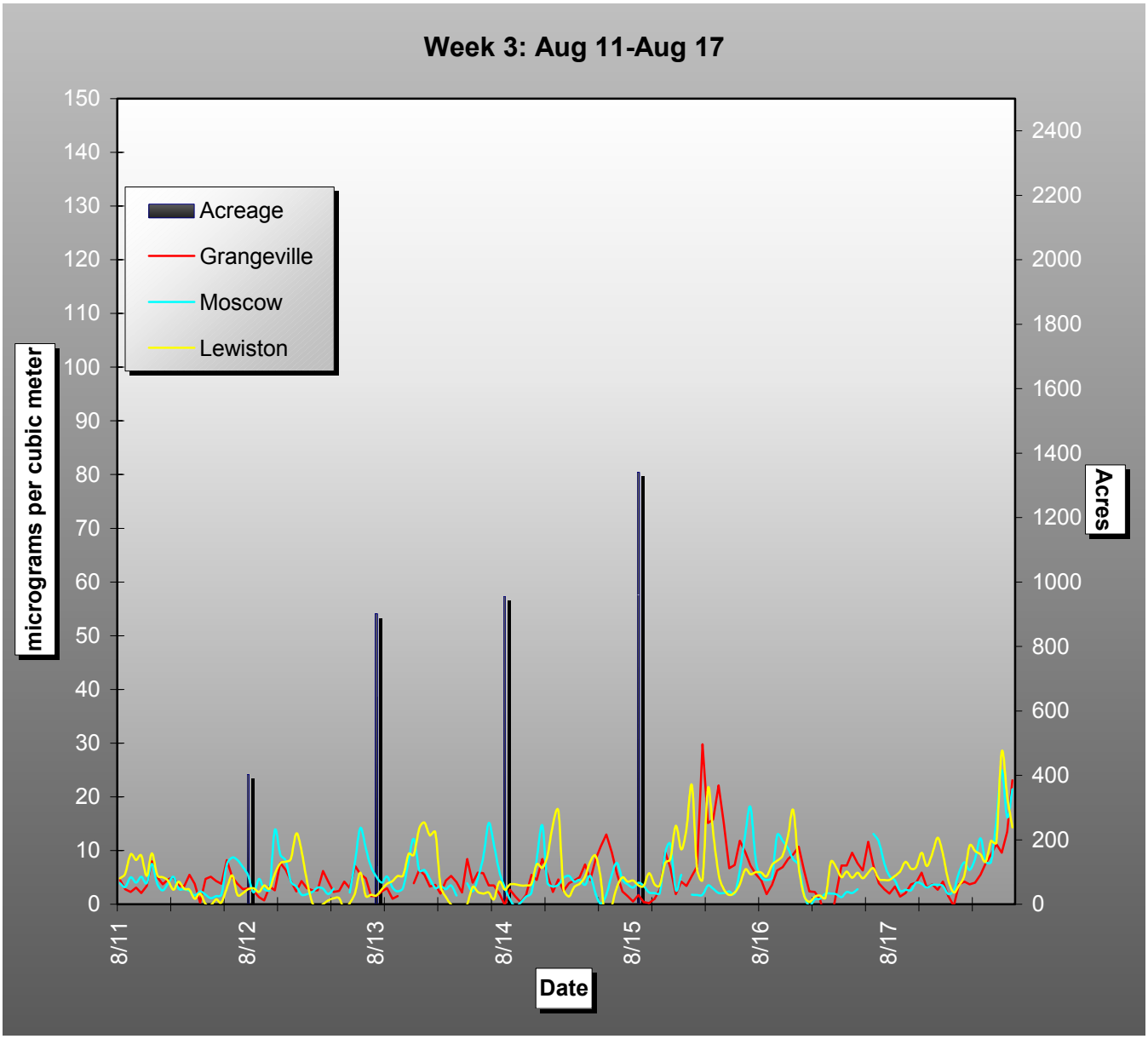
8/5
8/6
8/7
8/8
8/9
8/10


Week 3: Aug 11-Aug 17
micrograms per cubic meter
Acres
Date
Acreage
Grangeville
Moscow
Lewiston
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
2400
2200
2000
1800
1600
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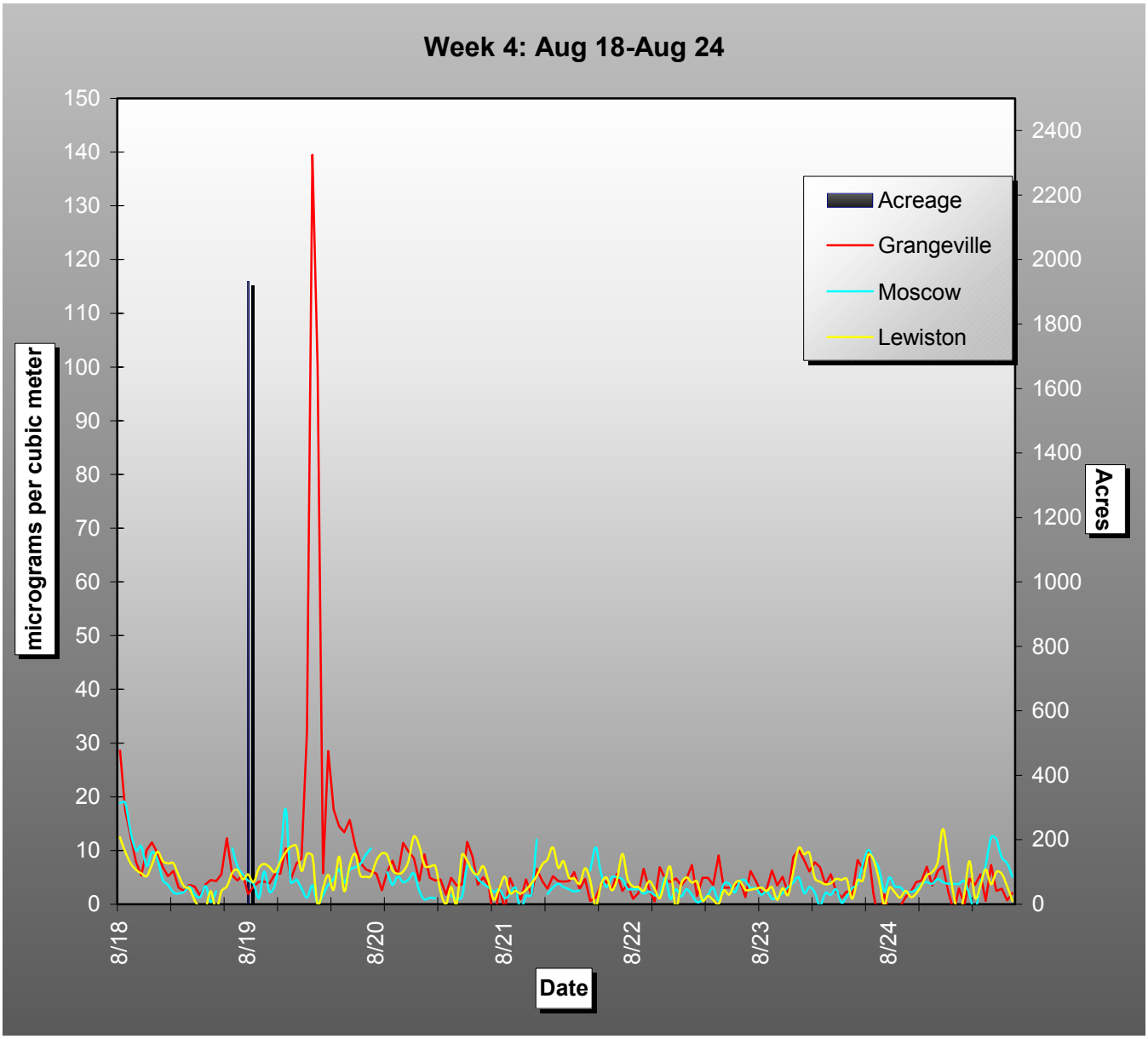
8/12
8/13
8/14
8/15
8/16
8/17


Week 4: Aug 18-Aug 24
micrograms per cubic meter
Acres
Date
Acreage
Grangeville
Moscow
Lewiston
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
2400
2200
2000
1800
1600
1400
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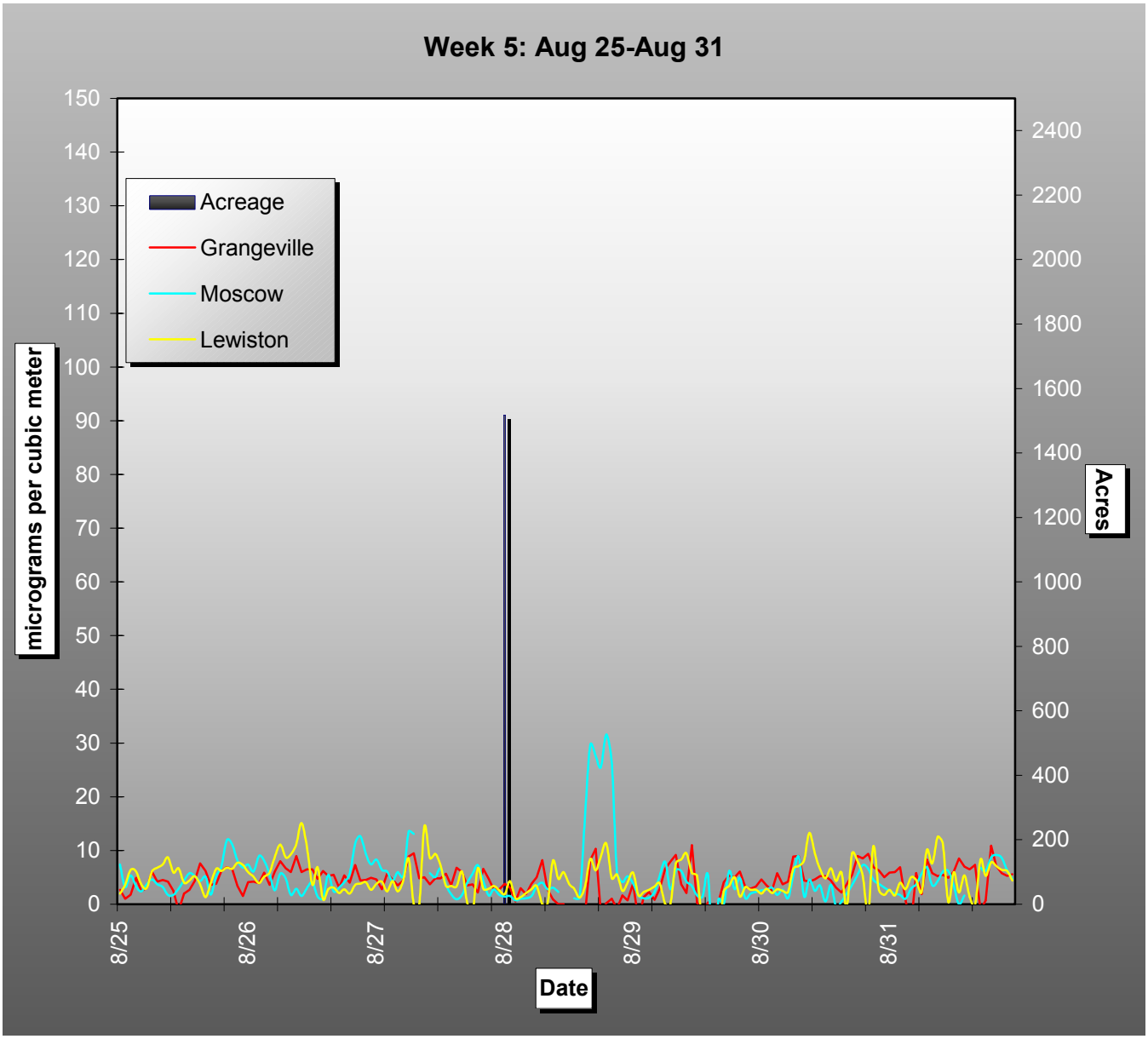
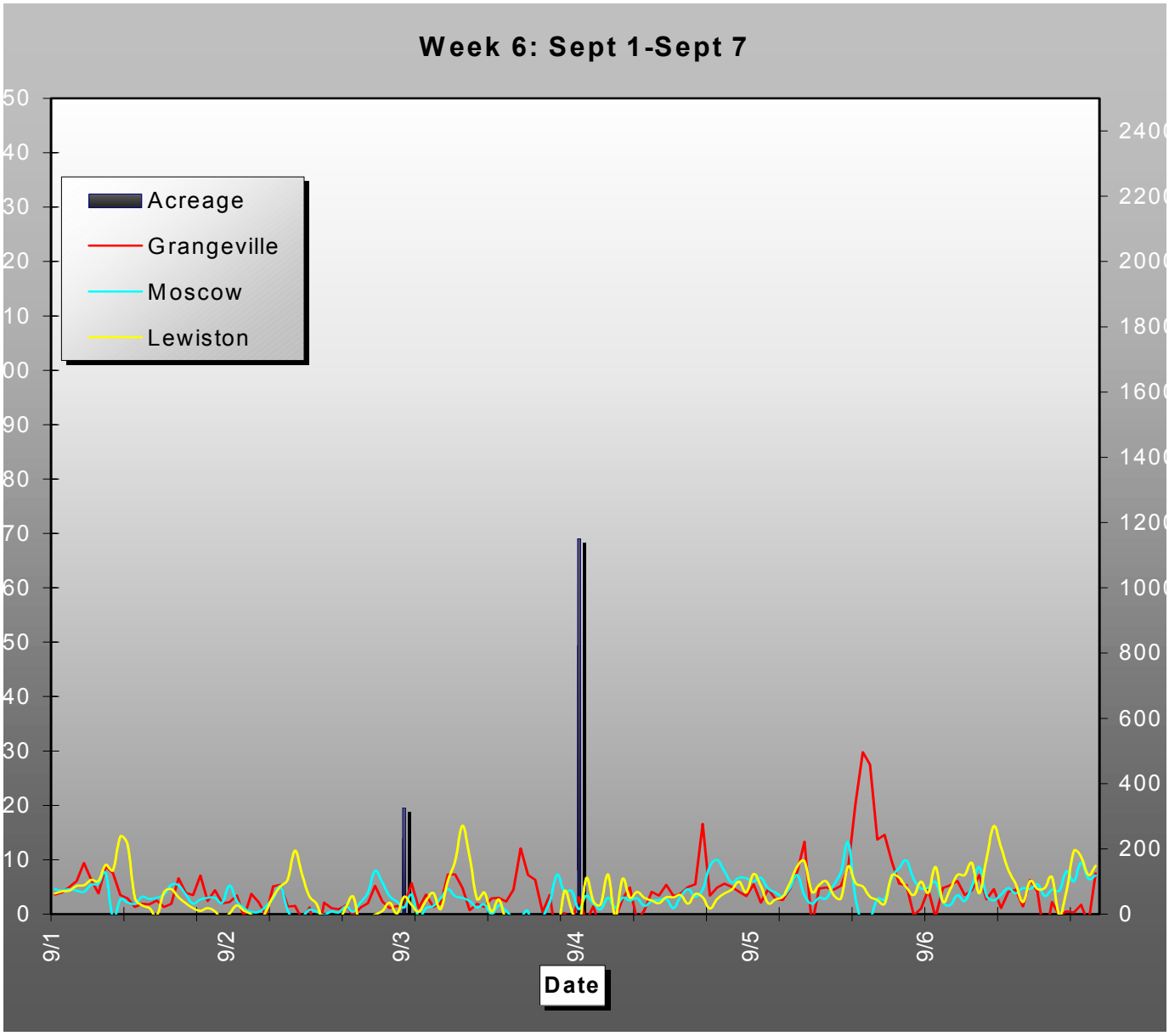
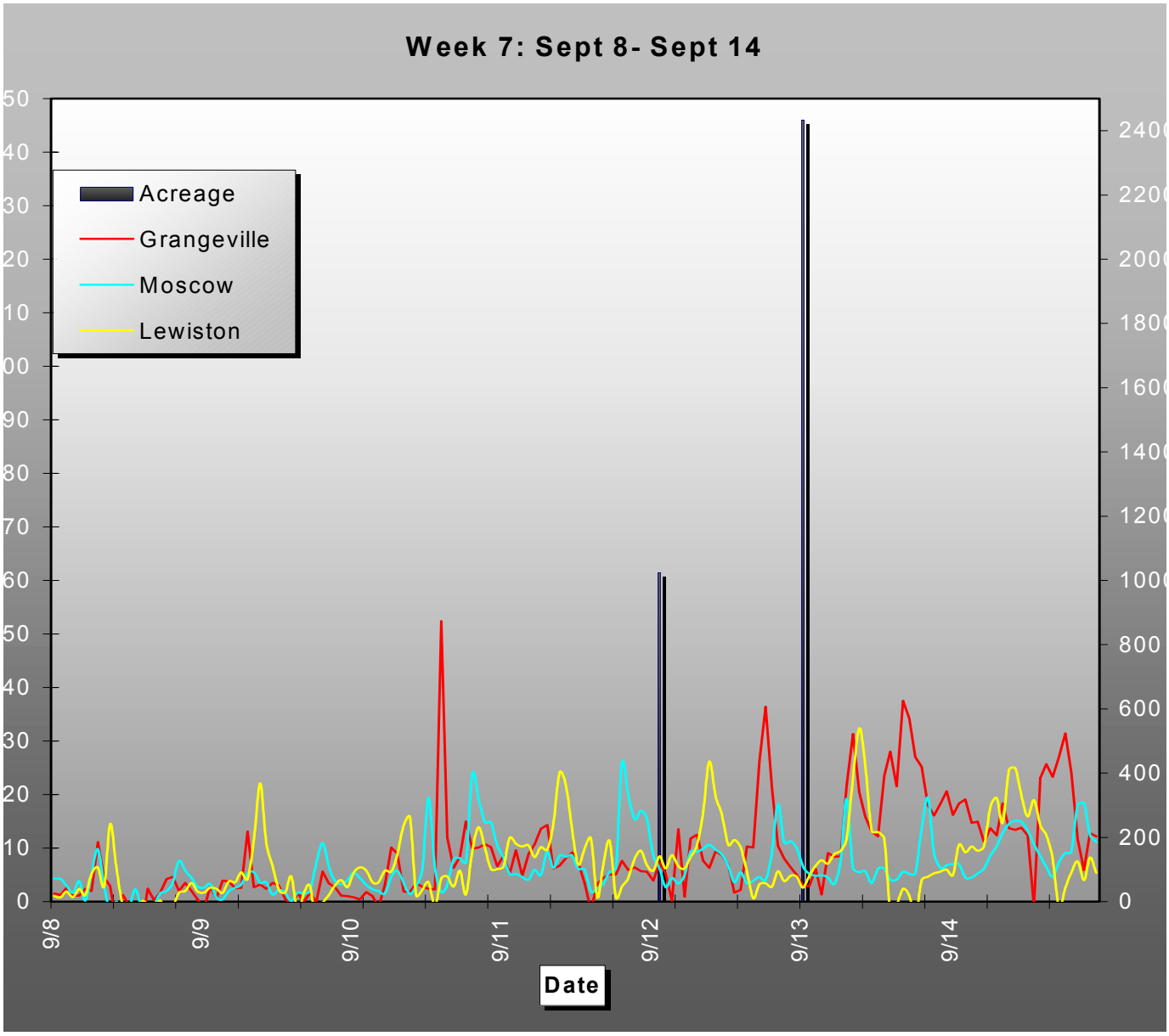
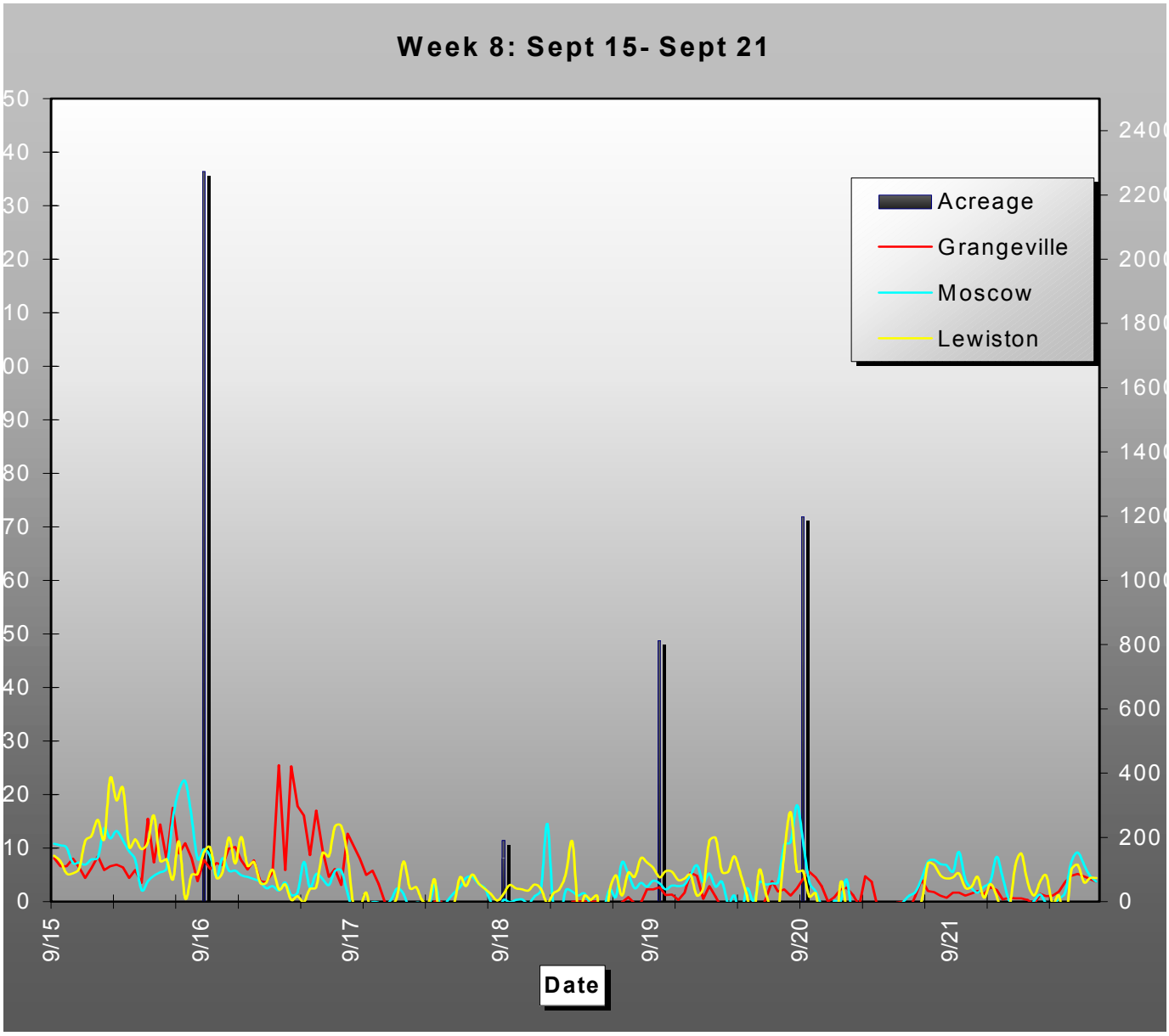
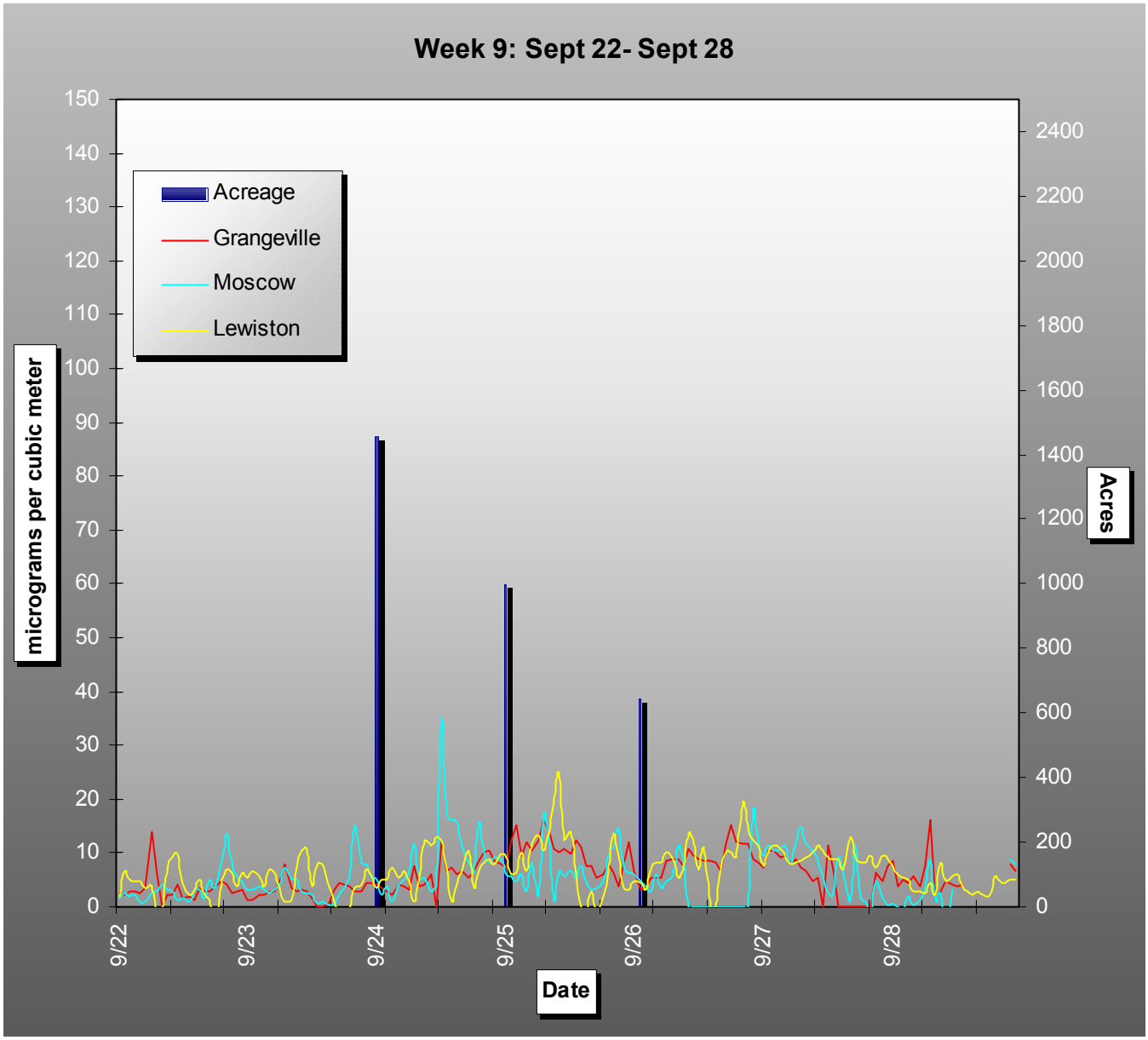
8/19
8/20
8/21
8/22
8/23
8/24

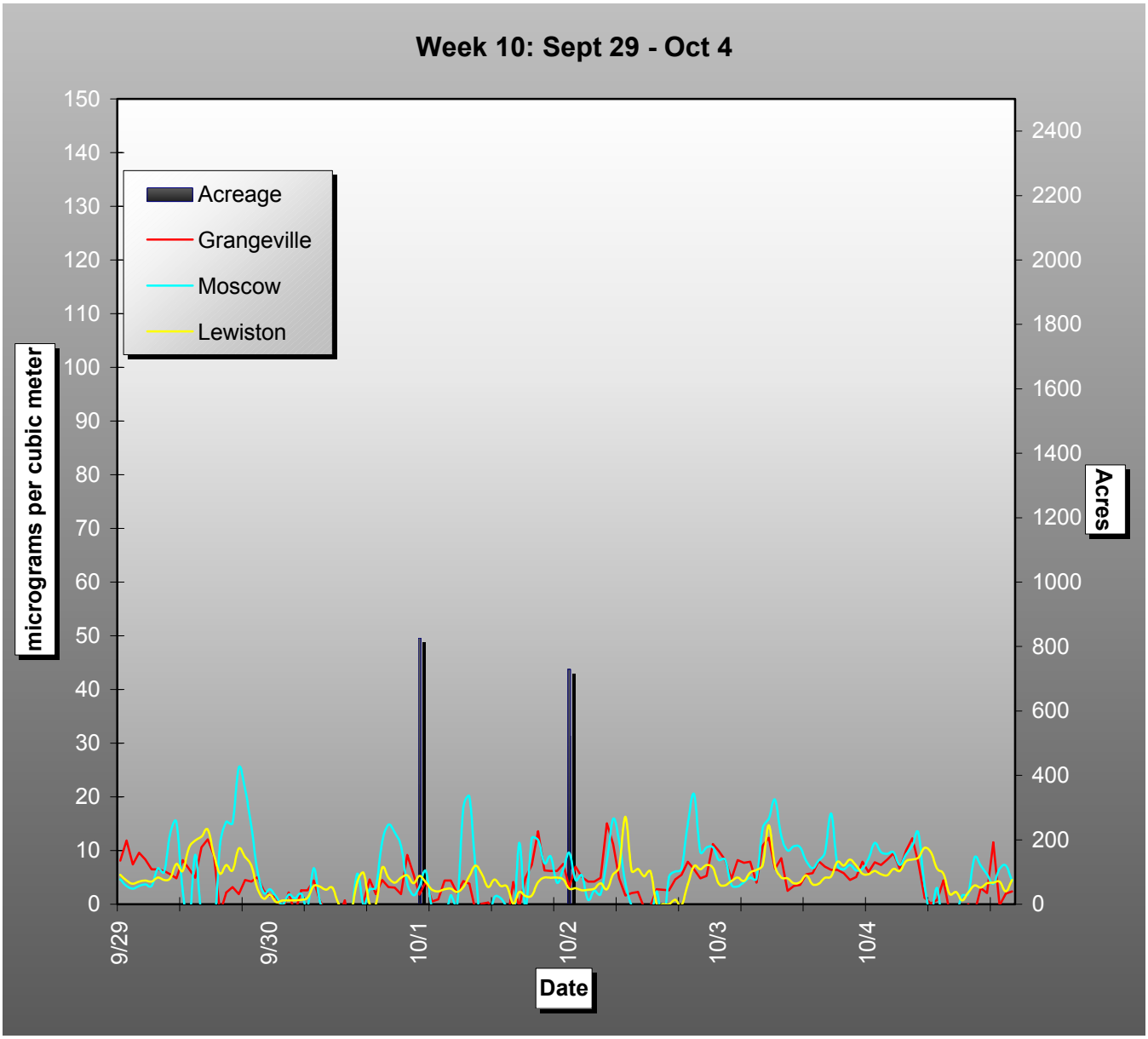

Week 5: Aug 25-Aug 31
micrograms per cubic meter
Acres
Date
Acreage
Grangeville
Moscow
Lewiston
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
8/25
8/26
8/27
8/28
8/29
8/30
8/31


Week 6: Sept 1-Sept 7
Acreage
Grangeville
Moscow
Lewiston
50
40
30
20
10
00
90
80
70
60
50
40
30
20
10
0
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
9/1
9/2
9/3
9/4
9/5
9/6
Date


Week 7: Sept 8- Sept 14
Acreage
Grangeville
Moscow
Lewiston
50
40
30
20
10
00
90
80
70
60
50
40
30
20
10
0
240
220
200
180
160
140
120
100
800
600
400
200
0
9/8
9/9
9/10
9/11
9/12
9/13
9/14
Date


Week 8: Sept 15- Sept 21
Acreage
Grangeville
Moscow
Lewiston
Date
9/15
9/16
9/17
9/18
9/19
9/20
9/21


Week 9: Sept 22- Sept 28
micrograms per cubic meter
Acres
Date
Acreage
Grangeville
Moscow
Lewiston
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
9/22
9/23
9/24
9/25
9/26
9/27
9/28


Week 10: Sept 29 - Oct 4
micrograms per cubic meter
Acres
Date
Acreage
Grangeville
Moscow
Lewiston
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
9/29
9/30
10/1
10/2
10/3
10/4

APPENDIX 5

Tier II Weather Data, 8/19/02

Weather data for August 19, 2002

Date	Time	Temperature	Wind Speed	Wind Direction
	PDT	**° F**	**mph**	**Degrees**
9/19/02	10:05	71.2	0	
9/19/02	10:10	72.5	0	
9/19/02	10:15	72.5	5	30
9/19/02	10:20	72.3	0	
9/19/02	10:25	72.3	4	10
9/19/02	10:30	72.7	5	340
9/19/02	10:35	73.2	7	320
9/19/02	10:40	73.8	5	320
9/19/02	10:45	74.3	3	270
9/19/02	10:50	74.1	6	340
9/19/02	10:55	74.1	3	20
9/19/02	11:00	73.6	0	
9/19/02	11:05	73.8	6	10
9/19/02	11:10	73.4	5	10
9/19/02	11:15	73.8	5	360
9/19/02	11:20	74.5	5	340
9/19/02	11:25	75.4	5	340
9/19/02	11:30	74.8	5	40
9/19/02	11:35	74.8	5	20
9/19/02	11:40	75	6	40
9/19/02	11:45	75.2	6	30
9/19/02	11:50	75.4	5	40
9/19/02	11:55	75.2	6	30
9/19/02	12:00	75.4	7	20
9/19/02	12:05	75.9	5	30
9/19/02	12:10	76.3	6	60
9/19/02	12:15	75.9	4	50
9/19/02	12:20	76.3	4	60
9/19/02	12:25	76.6	4	60
9/19/02	12:30	77	5	20
9/19/02	12:35	77.2	5	30
9/19/02	12:40	76.8	6	10
9/19/02	12:45	77.4	7	360
9/19/02	12:50	77.5	4	50
9/19/02	12:55	77.5	7	340
9/19/02	13:00	77.5	7	40
9/19/02	13:05	77.7	6	40
9/19/02	13:10	78.1	4	40
9/19/02	13:15	77.9	5	30
9/19/02	13:20	78.4	6	260
9/19/02	13:25	78.6	6	350
9/19/02	13:30	78.8	3	330
9/19/02	13:35	79.2	9	350
9/19/02	13:40	79	6	10
9/19/02	13:45	79.2	4	10
9/19/02	13:50	80.2	9	330
9/19/02	13:55	80.6	7	320
9/19/02	14:00	81.1	9	330
9/19/02	14:05	81.3	5	50
9/19/02	14:10	81.3	9	350
9/19/02	14:15	80.2	3	320
9/19/02	14:20	81	5	30
9/19/02	14:25	81	8	10
9/19/02	14:30	81.1	5	10
9/19/02	14:35	81.1	5	10
9/19/02	14:40	81.3	7	20
9/19/02	14:45	82	11	330
9/19/02	14:50	83.5	9	300
9/19/02	14:55	83.8	7	350
9/19/02	15:00	82.8	6	360
9/19/02	15:05	83.5	11	310
9/19/02	15:10	83.1	12	330
9/19/02	15:15	83.5	14	300
9/19/02	15:20	83.8	6	330
9/19/02	15:25	82.6	10	350
9/19/02	15:30	82	8	330
9/19/02	15:35	82.2	4	60
9/19/02	15:40	81.9	10	330
9/19/02	15:45	82	6	360
9/19/02	15:50	81.3	8	350
9/19/02	15:55	81.9	10	310
9/19/02	16:00	81.9	9	340

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mesowest@met.utah.ed

APPENDIX 6

North Idaho Airshed
2002 Kootenai and Benewah Counties Smoke Management Plan

2002 KOOTENAI COUNTY
FIELD BURNING SMOKE MANAGEMENT PLAN

Purpose

The purpose of this document is to identify the responsibilities of the various parties involved in the successful implementation of a long-running locally managed agricultural field burning smoke management plan for Kootenai county. The Kootenai County Smoke Management Plan (SMP) integrates local expectations with state laws and rules. These requirements include the Idaho State Department of Agriculture (ISDA) rules for crop residue disposal and the Idaho law for registering fields prior to burning.

The Idaho Smoke Management Advisory Board updates this plan annually and the plan is applicable for the period from July 1, 2002 to June 30, 2003. This document shall remain in effect until it is replaced by the following year's signed plan.

Introduction

Agricultural fields are burned annually in Idaho to control disease, weeds and pests, remove crop residue, and for other agronomic reasons. Agricultural field burning is a practice that the agricultural community has used for over twenty years in Idaho and is specifically endorsed by the Idaho Legislature. Grass seed growers in northern Idaho use field burning extensively as a management tool. The Northwest region has developed into the largest producer in the United States for Kentucky Blue Grass (KBG) seed.

In 1985, the Idaho State Legislature passed legislation to create a voluntary smoke management program for Kootenai and Benewah counties, Idaho Code §39-2301 to 2305. Idaho Code §39-2304 created the Idaho Smoke Management Advisory Board (ISMAB) to advise the Idaho Department of Environmental Quality[9] (DEQ) in the administration and enforcement of the code provisions. In 1999, the Legislature revised the Idaho Code to provide the Idaho Department of Agriculture greater responsibility and authority in smoke management and crop residue disposal. The previous code was repealed and replaced with Idaho Code §22-4801 to 4804. A copy of the Idaho chapter for smoke management and crop residue disposal is attached in Appendix A of this document.

In 2001, the ISDA adopted temporary rules for smoke management, IDAPA 02.06.16, and implemented a statewide crop residue disposal (CRD) smoke management program. A copy of the 2002 rule is attached hereto as Appendix B. The statewide smoke management program originally did not cover Kootenai and Benewah Counties because there were established smoke management programs already in effect within the boundaries of the Coeur d'Alene Indian Reservation and outside those boundaries.

To proactively and effectively manage smoke, to the extent possible, the implementation of smoke management programs should be integrated and coordinated across jurisdictional and

[9] In the 1999 Idaho Legislative session, the Divison of Environmental Quality was elevated to departmental status effective July 1, 2000.

political boundaries. To that end, it is desirable that the integration of the existing smoke management programs in Kootenai and Benewah Counties be incorporated with the statewide program implemented by ISDA. This would integrate the expertise and experience of the locally managed programs operated by the Coeur d'Alene Tribe and the North Idaho Farmers Association into the statewide program.

The goal of this smoke management plan is to minimize smoke impacts on the surrounding communities through the coordinated planning efforts of the ISMAB, the growers, the agricultural industry association, DEQ and the ISDA. Smoke impacts are minimized by utilizing reasonable efforts to dissipate smoke throughout designated areas in such a manner that air quality is maintained within the current state and federal ambient air quality standards. This plan also encourages an exploration of methods that will result in smoke abatement from field burning. These abatement methods could include but are not limited to; 1) finding economical alternatives to burning, and 2) reducing the amount of particulate emissions caused by burning.

Geographic Area

This smoke management plan is applicable to **all agricultural field burning** that occurs within Kootenai County throughout the year, excluding those agricultural fields that lie within the exterior boundaries of the Coeur d'Alene Indian Reservation. The Coeur d'Alene Tribe operates a smoke management program that covers all the agricultural field burning that occurs within the Reservation boundaries. Historically, this has included all the agricultural fields within Benewah County. The Coeur d'Alene Tribe, ISDA, and DEQ are taking steps to better integrate smoke management efforts on the Reservation with the statewide smoke management program to further advance a coordinated effort to minimize smoke impacts and protect air quality.

Due to variations in cropping systems, growers throughout Kootenai and Benewah County are operationally ready to burn crop residue at various times throughout the end of summer. The variability is attributed to crop type (cereal grain, KBG, other grasses), irrigated versus dryland, harvest techniques, and geographic location (prairie or river valley). This variability leads to crop residue burning that is dispersed geographically and temporally, beginning in August and sometimes running into October.

Fees and Registration

As outlined in the Idaho Code §22-4803, any person planning to conduct agricultural field burning in Kootenai and Benewah counties must first register each field with the DEQ. A fee of one dollar ($1.00) per acre of cropland to be burned must be paid prior to field ignition. DEQ will send the registration forms to the growers based on the registration record the previous year. Any new growers who have not previously registered their fields for this program must contact DEQ to request the appropriate forms. Registration forms are available at the DEQ office located at the following address:

Idaho Department of Environmental Quality
2110 Ironwood Parkway
Coeur d'Alene, Idaho 83814
Phone: (208)769-1422 Fax: (208)769-1404

DEQ will compile the registration forms and make them available to the grower's association as needed. These forms also become a public record and are made available to the public when

information requests are submitted, as per Idaho Code §9-338. DEQ shall remit all registration fees to the state treasurer for deposit into the state agricultural smoke management account.

Requests for refund of registration fees shall be reviewed by the ISMAB.

Outside of Kootenai and Benewah counties, any person planning to conduct agricultural field burning shall register with the ISDA as per IDAPA 02.06.16 (see appendix B).

Plan Operation Overview

The ISDA has the responsibility for determining whether or not it is a burn day for crop residue disposal on those lands over which ISDA has jurisdiction throughout the state. IDAPA 02.06.16.010 defines a burn day as a period of time when meteorological conditions are conducive to adequate smoke dispersion and when the burning of crop residue would not likely exceed the National Ambient Air Quality Standards (NAAQS).

In the past, the North Idaho Farmers Association (NIFA)[10] and DEQ worked in a cooperative manner to implement a voluntary program in Kootenai County. Under Idaho Code section 22-4801, et seq., growers in Kootenai County are required to comply with the statewide ISDA rules but may adopt more stringent local requirements if necessary. Historically, the voluntary SMP for Kootenai County implemented certain conditions that were more stringent than the current statewide requirements. The 2002 SMP will describe the program elements that comply with the statewide program, integrate local expectations, and continue to provide for local input on burn decisions.

In north Idaho, local growers have developed and refined an agricultural burning program with over twenty years of hands-on experience. The grower association maintains a seasonal weather station on the Rathdrum Prairie that is staffed by a trained smoke coordinator and other support staff. This station and its staff have the primary responsibility for coordinating the field burning activities of the growers on the Rathdrum Prairie and surrounding areas in Kootenai County.

DEQ maintains a network of air quality monitoring sites in north Idaho. These sites are operated and maintained to meet federal requirements for data representativeness and reporting criteria. The sites include instruments to measure criteria pollutants and at some sites, localized weather conditions. The pollutant specifically measured is particulate matter (PM). DEQ also develops and maintains additional seasonal sites specifically to support this smoke management plan. These seasonal sites are typically maintained for a short duration during the field burning season. The equipment used at these sites varies but usually non-reference methods are employed to monitor air quality trends during field burning season. A list of the monitoring sites, the type of equipment, and data access for each monitoring device is found in Appendix D. DEQ has provided the growers with electronic access to all the real-time monitoring devices applicable to the smoke management program.

ISDA has the responsibility for receiving and tracking complaints associated with agricultural burning. In years past, DEQ has received funding approval from the ISMAB to contract with a phone messaging service to respond to complaints associated with burning covered by this

[10]Historically, the Intermountain Grass Growers Association (IGGA) participated in this plan. The NIFA was organized in 1998 to represent the agricultural interests of farmers and will replace the IGGA in north Idaho.

plan. Under a partnership agreement, ISDA, the Coeur d'Alene and Nez PerceTribes, and DEQ will establish a contract with a local company to operate the complaint line for the 2002 season to assist the ISDA with complaint logging and tracking. The contractor will provide a local number and a toll free number to receive complaints and comments concerning field burning. The contractor will summarize the number of calls received and send a daily summary via fax and email to the ISDA, the DEQ, the Nez Perce Tribe, and the Coeur d'Alene Tribe.

Applicable Crop Types

This smoke management program is applicable to all of the crop types identified in the Idaho Code which are required to register for crop residue burning. This includes residue burning for all cereal grain crops as well as forage grass and turf grass crops.

Field Burning Restrictions

Based on historical agreements concerning limitations on field burning, the growers will burn only on the weekdays, Monday through Thursday. The NIFA growers have agreed to not burn on Friday, Saturday and Sunday, and not burn on the Labor Day holiday. The statewide program allows for burning Friday but the long-running programs in north Idaho have avoided burning on Fridays.

Field burning is limited to a total of 14 burn days under this local SMP. The statewide program was modified this year and does not have any limitations on the number of burn days. The fourteen burn days can occur throughout the post-harvest time period and have no specific start or end date. Historically, growers in Kootenai County have completed all field burning in less than fourteen burn days. Some growers are ready to burn as early as the first week of August while other growers are not ready until the end of September.

A registered grower may burn up to 10 acres per day as a test burn to observe smoke dispersion conditions. Test burns limited to 10 acres per day are not counted as one of the fourteen allowed burn days. The test fire must be extinguished if smoke dispersion is not satisfactory, as determined by the grower smoke coordinator. If the test burn is not extinguished and the number of acres burned exceeds the 10-acre limit, then that day shall count as a burn day. If the ISDA calls a burn day and less than ten (10) acres total are burned, with the exception of reburning acres (see below), then that day is not counted towards the fourteen burn day limit imposed by this SMP.

During certain years, weather conditions and other factors may contribute to incomplete burns, especially on the grass seed fields. The grower may need to perform additional burning using mechanical equipment. This type of burning is referred to as reburning. If the total number of acres reburned in a day exceeds 500 acres, then that day is counted as a burn day. The grower must coordinate with the ISDA and the local smoke coordinator prior to reburning any fields. Reburning is allowed on Fridays, after the Labor Day weekend. No reburning is allowed on Saturdays, Sundays, holidays, or Fridays prior to Labor Day.

Perennial grass fields are plowed out and replaced periodically. To reduce the total number of post-harvest acres burned, grass fields scheduled for replacement and plow-out immediately following this year's harvest, are not allowed for crop residue burning unless the following conditions apply:

1. According to the grower's rotational management plan, the grass field is scheduled for no-till/direct seed planting and residue reduction is necessary to accomplish this rotation.

2. A certified agricultural extension agent has determined that burning is the best management practice to control disease, rodent, and/or weed infestation in that grass field.

All open burning is prohibited during an Air Stagnation Advisory. Air Stagnation Advisories are determined by DEQ (IDAPA 58.01.01.550) and announced to the general public through press releases. **Pursuant to IDAPA 02.06.16.500.02, no new fires shall be ignited when particulate levels reach 80% of the one-hour criteria for PM2.5, and are predicted to remain above those levels**.

Specific Plan Operations -- Applicable to **All** Registered Fields (Grass and Cereal Grains)

As described earlier in this plan, growers in Kootenai County who plan to burn crop residue are subject to the ISDA statewide rules for crop residue disposal (Appendix B). ISDA recognizes the value and experience of the existing local SMP's in north Idaho and has integrated the local programs into the statewide process for determining burn days on county-by-county basis across the state. This integration process has changed the role of local coordinators in determining burn days, specifically in Kootenai County outside of the Coeur d'Alene Tribe reservation boundaries. The responsibilities of each organization are generally described below and shown in greater detail in a flow chart found in Appendix C.

1. The ISDA will review weather information from a wide range of sources along with local air quality data and develop a daily burn forecast for the following day. ISDA will post this forecast on their website by 4:00 p.m. PDT. The local coordinator can review this decision and provide feedback to ISDA via email or fax.

2. Early the following morning, ISDA will review the latest weather information, any comments received from local coordinators, and re-evaluate the burn forecast. ISDA will post their county-level burn recommendation on the ISDA website and their toll-free line by 7:30 a.m. PDT. Based on local weather observations and balloon measurements, the local coordinator can challenge a no-burn recommendation by ISDA. ISDA will re-evaluate this information and must concur with the local recommendation before approving a burn decision.

3. After receiving a burn approval from ISDA, the local coordinator has the final responsibility to decide if local conditions are appropriate for field burning. Local conditions are evaluated using balloon measurements, test burns, and other sources of information to make a final decision. The local coordinator will email the ISDA and DEQ with a final decision by 10 a.m. PDT or as soon as possible thereafter. The local burn coordinator will establish the burn period ignition start and stop times and limit the total acres burned according to the recommendation from ISDA.

4. During the burn period, the local smoke coordinator will monitor PM2.5 and PM10 concentrations by electronically accessing real-time data collected in CDA, Post Falls, and Sandpoint. The smoke coordinator will also have electronic access to nephelometers deployed by DEQ for this seasonal smoke management program. The nephelometer provides an indirect measurement of PM2.5 as Beta Scattering Coefficient (BSC).

5. If the $PM_{2.5}$ concentration[11], or BSC equivalent, at any one of the monitoring sites reaches 60 ug/m^3 for a one-hour average during the burn period during a designated burn day, the smoke coordinator will reevaluate the local meteorological conditions for smoke dispersion to determine whether or not to continue igniting fields in order to minimize downwind air quality impacts.

6. If the $PM_{2.5}$ concentration, or BSC equivalent, at any one of the monitoring sites reaches 80 ug/m^3 for a one-hour average during the burn period, the local smoke coordinator and the ISDA will curtail field burning for the day. No additional fields are allowed for burning for the rest of the day. Existing burns are allowed to burn out. The grower(s) may take additional action to increase the burn rate to complete an existing field burn(s) once a curtailment is announced.

7. If weather conditions change and particulate levels drop below the trigger levels identified above, the local smoke coordinator must coordinate with the ISDA and jointly decide whether to continue burning. DEQ will be available for consultation.

8. It is the responsibility of the local smoke coordinator and the ISDA to make these decisions that limit or curtail field burning. DEQ will be available for consultation.

9. Following a burn day, the NIFA smoke coordinator and ISDA will review the previous burn day events, evaluate the complaints received, and check the current air quality conditions before approving any new burns. The smoke coordinator will also report the total number of acres burned the previous day to the ISDA and the DEQ.

To ensure good communication and coordination, it will be necessary for the growers to carry with them some type of communication device, such as a pager, radio or cellular phone while in the field in the event the smoke coordinator has to curtail or suspend burning for a period of time.

Enforcement Team and Fines

A four member enforcement team consisting of a representative from the North Idaho Farmers Association, the Idaho Department of Environmental Quality, the Idaho Smoke Management Advisory Board, and the Idaho State Department of Agriculture shall respond to any alleged violations of the smoke management program or any alleged violations of Idaho Code §22-4804. If a violation of the plan is confirmed by the enforcement team, the grower may be subject to financial penalties as imposed by this plan or applicable Idaho law. The penalties associated with this SMP are described below.

A. Level One Fine is $500.00 per field plus $10.00 per acre burned. The criteria for a level one fine are as follows:
    i. burning a field without first registering the field, or

[11] In 1999, the ISMAB decided to use $PM_{2.5}$ concentrations for trigger levels instead of PM_{10}. The ISMAB chose $PM_{2.5}$ action levels that would minimize impact on public health and not impede smoke management decisions.

ii. burning a field on a Friday, Saturday or Sunday, or
iii. burning a field on the Labor Day holiday, or
iv. burning a field on a no-burn day as determined by the ISDA and the local smoke coordinator.

B. Level Two Fine is $250.00 per field and is subject to the discretion of the enforcement team. The criteria for a level two fine are as follows:
i. burning a field after the designated hours, which are defined by the local smoke coordinator, or
ii. using inappropriate fire management that contributes to excessive smoke as determined by the enforcement team.

The enforcement team will send a written notification to the grower identifying the alleged violation(s) and the penalty amount as determined by the enforcement team. Appeals to penalties shall be made available and the Idaho Smoke Management Advisory Board (ISMAB) shall hear any appeals. Monetary fines are made out to the Idaho Department of Environmental Quality for deposit into the state agricultural smoke management account. This dedicated account is managed by the ISMAB.

Season End Summary

After each field burning season, DEQ and ISDA will develop summary reports to provide an overview of the program for the year.

SIGNATURES:

_____ Date: _____
Patrick A. Takasugi, Director
Idaho State Department of Agriculture

_____ Date: _____
C. Stephen Allred, Director
Idaho Department of Environmental Quality

_____ Date: _____
Bill Dole, Chairman
Idaho Smoke Management Advisory Board

_____ Date: _____
Walt Meyer
North Idaho Farmers Association

APPENDIX A

TITLE 22
AGRICULTURE AND HORTICULTURE
CHAPTER 48
SMOKE MANAGEMENT AND CROP RESIDUE DISPOSAL

22-4801. LEGISLATIVE FINDINGS AND INTENT.
The legislature finds that the current knowledge and technology support the practice of burning crop residue to control disease, weeds, pests, and to enhance crop rotations. It is the intent of the legislature to promote agricultural activities. Currently some of those activities include crop residue burning. The director of the Idaho department of agriculture may promulgate rules relating to crop residue burning under this chapter. Further, the legislature encourages the Idaho department of agriculture and the Idaho department of health and welfare, division of environmental quality to cooperate with the agricultural community and establish voluntary smoke management and crop residue burning programs. The legislature encourages the Idaho department of agriculture and the agricultural community to pursue alternative means to crop residue disposal. Nothing in this chapter shall prohibit the Idaho department of health and welfare, division of environmental quality from enforcing the environmental protection and health act, chapter 1, title 39, Idaho Code, and the rules promulgated pursuant thereto, as they relate to air quality and protection of the state and national ambient air quality standards.

22-4802. DEFINITIONS. In this chapter
(1) "Adequate smoke dispersion" means that favorable meteorological and air quality conditions exist to allow crop residue burning to occur without endangering ambient air quality standards.
(2) "Cereal grain field" means a field of grass cultivated for edible seeds such as wheat, oats, barley, rye, rice, maize, grain, sorghum and proso millet.
(3) "Crop residue" means any vegetative material remaining in the field after harvest and shall not include weeds along ditch banks or waterways, orchard prunings, or forest slash piles.
(4) "Department" means the Idaho department of agriculture.
(5) "DEQ" means the Idaho department of health and welfare, division of environmental quality.
(6) "Director" means the director of the Idaho department of agriculture.
(7) "Field grass" or "forage grass field" means a field which has been planted with one (1) of the following varieties of grass for the purpose of producing seed canary grass, bromegrass, oat grass, Timothy grass, wheat grass, or orchard grass.
(8) "Person" means a natural person, individual, firm, partnership, corporation, company, society, association, cooperative, two (2) or more persons having a joint or common interest, or any unit or agency of local, state or federal government.
(9) "Reasonable efforts" means, but is not limited to, the obtaining of any available information on local meteorological and air quality conditions and observing the smoke plume from small test fires or from other field burns.
(10) "Turf grass field" means a field, which has been planted with one (1) of the following varieties of grass for the purpose of producing seed bluegrass, bent grass, fescues or perennial ryegrass.

22-4803. AGRICULTURAL FIELD BURNING.
(1) The open burning of crop residue grown in agricultural fields shall be an allowable form of open burning when the provisions of this chapter, and any rules promulgated pursuant thereto, and the environmental protection and health act, and any rules promulgated pursuant thereto, are met, and when no other agricultural viable alternatives to burning are available, as determined by the director, for the purpose of
(a) Disposing of crop residues;
(b) Developing physiological conditions conducive to increased crop yields; or
(c) Controlling diseases, insects, pests or weed infestations.
(2) The following provisions shall apply to all agricultural field burning
(a) Any person conducting crop residue burning must make every reasonable effort to burn only when weather conditions are conducive to adequate smoke dispersion, and the burning does not emit particulates or other material which exceed the state and federal ambient air quality standards; and
(b) The open burning of crop residue shall be conducted in the field where it was generated.
(3) In Kootenai and Benewah counties, the legislature finds that there are a great many cereal grain, field grass, forage grass, and turf grass fields, and it is a practice to burn these fields to control disease, weeds and pests in these counties. Therefore, in Kootenai and Benewah counties, no person shall conduct or allow any crop residue burning without first registering each field with the DEQ each year burning is conducted. Approved forms for registering fields when needed may be obtained at the DEQ's Coeur d'Alene office. This provision is not met unless the forms contain all required information and are received by the DEQ prior to field ignition.
(4) The use of reburn machines, propane flamers, or other devices to ignite or reignite a field for the purpose of crop residue burning shall be considered an allowable form of open burning when the provisions of this chapter, and any rules promulgated pursuant thereto, the environmental protection and health act, and any rules promulgated thereto, are met.

22-4804. KOOTENAI AND BENEWAH COUNTIES -- AGRICULTURAL BURNING FEES -- ACCOUNT -- RULES -- RESEARCH -- MANAGEMENT PROGRAM.
(1) Any person who registers a field with the DEQ for agricultural burning in Kootenai or Benewah counties shall pay to the DEQ a fee of one dollar ($1.00) per acre of cropland to be burned. The DEQ shall remit all fees monthly to the state treasurer, who shall deposit the moneys in the state agricultural smoke management account which is hereby created. The board of health and welfare may, upon the recommendation of the DEQ, adopt rules pertaining to
(a) Collection, handling, and refund of fees established in subsection (1) of this section; and
(b) Disbursement of funds from the account as provided in subsection (2) of this section.
(2) The DEQ may use moneys from the agricultural smoke management account as appropriated annually by the legislature for
(a) Research to
(i) Develop alternative crops which do not require burning;
(ii) Improve burning and cultural practices for crops which may require burning; and

(iii) Explore alternatives to burning; and

(b) Supplementation of appropriated general account moneys for implementation of agricultural smoke management programs referenced in section 22-4801, Idaho Code.

(3) A smoke management advisory board is established in the DEQ to advise the DEQ administrator or his designee in the administration and enforcement of the provisions of this section by overseeing the funds provided and to review and recommend research programs. The board shall consist of six (6) members three (3) from the agricultural community and three (3) nonagriculturists from the general public, appointed by the governor and to serve at the pleasure of the governor. The seventh member shall be ex officio and shall be the administrator of the DEQ or his designee.

(4) The board shall, on the first day of each July or as soon thereafter as practicable, elect a chairman and a vice chairman from among its members, and these officers shall hold office until their successors are elected. As soon as the board has elected it officers, the secretary shall certify the results of the election to the administrator of the DEQ. The chairman shall preside at all meetings of the board and the secretary shall make a record of the proceedings which shall be preserved in the offices of the DEQ. If the chairman is absent from any meeting of the board, his duties shall be discharged by the vice chairman. All members of the board present at a meeting shall be entitled to vote on any question, matter, or thing which properly comes before it.

APPENDIX B

IDAPA 02
TITLE 06
Chapter 16

02.06.16 - CROP RESIDUE DISPOSAL RULES

(BREAK IN CONTINUITY OF SECTIONS)

010. DEFINITIONS.

The Idaho State Department of Agriculture adopts the definitions set forth in Section 22-4802, Idaho Code. In addition as used in this chapter~~:~~ a burn day will be defined as (7-1-01)T

~~01.~~ ~~Airshed.~~ ~~An area covered by a volume of air that has similar meterological and air quality characteristics is separated from other volumes of air by weather patterns and topography.~~ ~~(7-1-01)T~~

~~02.~~ ~~Burn Day.~~ A~~a~~ period of time when meterological conditions are conducive to adequate smoke dispersion and when the burning of crop residue would not likely ~~violate~~ exceed National ~~a~~Ambient ~~a~~Air ~~q~~Quality ~~s~~Standards ~~established by the USEPA, the IDEQ, or an Indian tribe authorized by federal law to establish air quality standards~~. ~~(7-1-01)T~~( )T

011. ABBREVIATIONS.

01. **IA~~C~~SGA.** Idaho Alfalfa & Clover Seed Growers Association. ~~(7-1-01)T~~( )T

02. **IDEQ.** Idaho Department of Environmental Quality. (7-1-01)T

03. **IEOSA.** Idaho Eastern Oregon Seed Association. (7-1-01)T

04. **IGP.** Idaho Grain Producers. (7-1-01)T

05. **IMGA.** Idaho Mint Growers Association. (7-1-01)T

06. **ISDA.** Idaho State Department of Agriculture. (7-1-01)T

07. **NAAQS.** National Ambient Air Quality Standards. ( )T

0~~7~~8. **NIFA.** North Idaho Farmers' Association. (7-1-01)T

0~~8~~9. **NPGGA.** Nez Perce Prairie Grass Growers Association. (7-1-01)T

1**~~09~~.** **USEPA.** United States Environmental Protection Agency. (7-1-01)T

(BREAK IN CONTINUITY OF SECTIONS)

100. REGISTRATION OF FIELDS TO BE BURNED.

01. ~~Fields Larger Than Five Acres~~ Registration. All persons in Idaho except in Benewah and Kootenai Counties shall register each field ~~larger than five (5) acres~~ to be burned with ISDA ~~each year field burning is conducted~~ prior to burning crop residue. ~~(7-1-01)T~~( )T

02. Registration Forms. Approved forms for registering fields may be obtained from offices of ISDA, IDEQ, County Extension Educators or Soil Conservation District offices. A single form is required for each person, however, more than one (1) field may be listed on a single form. County, township, range, and section for each field registered must be included on the registration form. Completed forms shall include permit numbers for any burning permits issued by county, state, or federal agencies, or local fire protection authorities. ~~(7-1-01)T~~( )T

03. ~~Deadlines for Registration.~~ ~~Completed and signed registration forms shall be received by ISDA one (1) month prior to the burning of the crop residue.~~ **Perennial Crops.** It is not necessary to re-register annually each field of perennial crops to be burned after the initial registration. It shall be the responsibility of the grower to notify the ISDA when a field of perennial crop is taken out of production. ~~(7-1-01)T~~( )T

101. -- 199. (RESERVED).

200. DETERMINATION OF BURN OR NO BURN DAYS.

01. ~~Recommendation of IDEQ~~Designation Of Burn Days. The director or his designee shall designate for a given ~~airshed~~ county burn or no burn days~~, the hours that burning shall be permitted, and the number of acres to be burned based on the recommendation of IDEQ~~. ~~(7-1-01)T~~( )T

02. Daily Postings On Website. The department shall post daily on their website whether a given day is a burn or no burn day~~, the hours that burning shall be permitted and the number of acres persons can burn in a given airshed~~. ~~(7-1-01)T~~

03. Time And Acres To Burn. The hours that burning shall be permitted, and the number of acres to be burned for a given county shall be based on local meteorological conditions and/or a test burn. ( )T

0~~3~~4. Toll Free Number. (7-1-01)T

~~a.~~ The department shall make available a toll free number to receive ~~incoming complaints,~~ requests for information, and will include an updated message designating a burn or no burn day in a given county. ~~(7-1-01)T~~( )T

~~b. All persons in Idaho except in Benewah and Kootenai Counties shall report to ISDA via the toll free number the date of burning and acres burned.~~ ~~(7-1-01)T~~

201. -- ~~2~~499. (RESERVED).

~~300. CROP RESIDUE BURNING TIME FRAME.~~

~~01. Spring Burning.~~ ~~Burning of crop residue shall be allowed for a maximum of fourteen (14) days within a forty-five (45) day time period during the spring within each airshed.~~ ~~(7-1-01)T~~

02. Fall Burning. Burning of crop residue shall be allowed for a maximum of fourteen (14) days within a forty-five (45) day time period during the fall within each airshed. (7-1-01)T

301. -- 499. (RESERVED).

500. GENERAL PROVISIONS.
All persons in Idaho except those in Benewah and Kootenai Counties intending to disposinge of crop residue through burning shall abide by the following provisions: (7-1-01)T

01. Violation Of Ambient Air Quality Exceedence of NAAQS. All persons planning to Bburning of crop residue in Idaho shall not be conducted burn if it would result in a violation of ambient air quality standards as established by USEPA and IDEQ the NAAQS have been reached, are predicted to reach, and persist at a level that would result in an exceedence of NAAQS. (7-1-01)T( )T

02. Cessation of Burning. In conjunction with IDEQ rules governing Air Pollution, IDAPA 58.01.01.556, no new fires shall be ignited with particulate matter levels reach eighty percent (80%) of the one (1) hour action criterea for particulate matter of two and one-half (2.5) microns or less, and are predicted to remain above those levels. ( )T

03. Burning Prohibitions. Burning of crop residue shall not be conducted on weekends or federal or state holidays. (7-1-01)T

04. Setback From Structures. Burning of crop residue shall not be conducted within fifty (50) feet of any school or structure. (7-1-01)T

05. Adequate Fire Suppression Equipment. Adequate fire suppression equipment shall be on site prior to any burning of crop residue. (7-1-01)T

034. Designated Burn Day. Burning of crop residue shall not be conducted unless the department has designated that day a burn day. (7-1-01)T

045. Location Of Field Burning. Disposal of crop residue through burning shall be conducted in the field where it was generated. (7-1-01)T

056. Training Session. All persons intending to burn crop residue shall attend a crop residue burning training session provided by ISDA. (7-1-01)T

067. Air Stagnation Advisory. All field burning shall be prohibited during an IDEQ air stagnation advisory. (7-1-01)T

078. Airsheds Reporting To ISDA. All persons burning crop residue in Idaho shall first obtain approval to burn prior to field ignition. All persons burning crop residue shall also report to ISDA shall designate for each airshed the names of persons date burning was conducted and the number of acres to burned. (7-1-01)T( )T

09. Burning Of Fields Adjacent To Roads. Burning of fields adjacent to roads and highways shall be approved on a case-by-case basis taking into account the time of day, field size and wind direction. ( )T

10. **Additional Burning Permits.** All persons intending to burn crop residue shall obtain any additional applicable permits from federal, state or local fire control authorities prior to receiving ISDA approval to burn crop residue. ( )T

501. -- 799. (RESERVED).

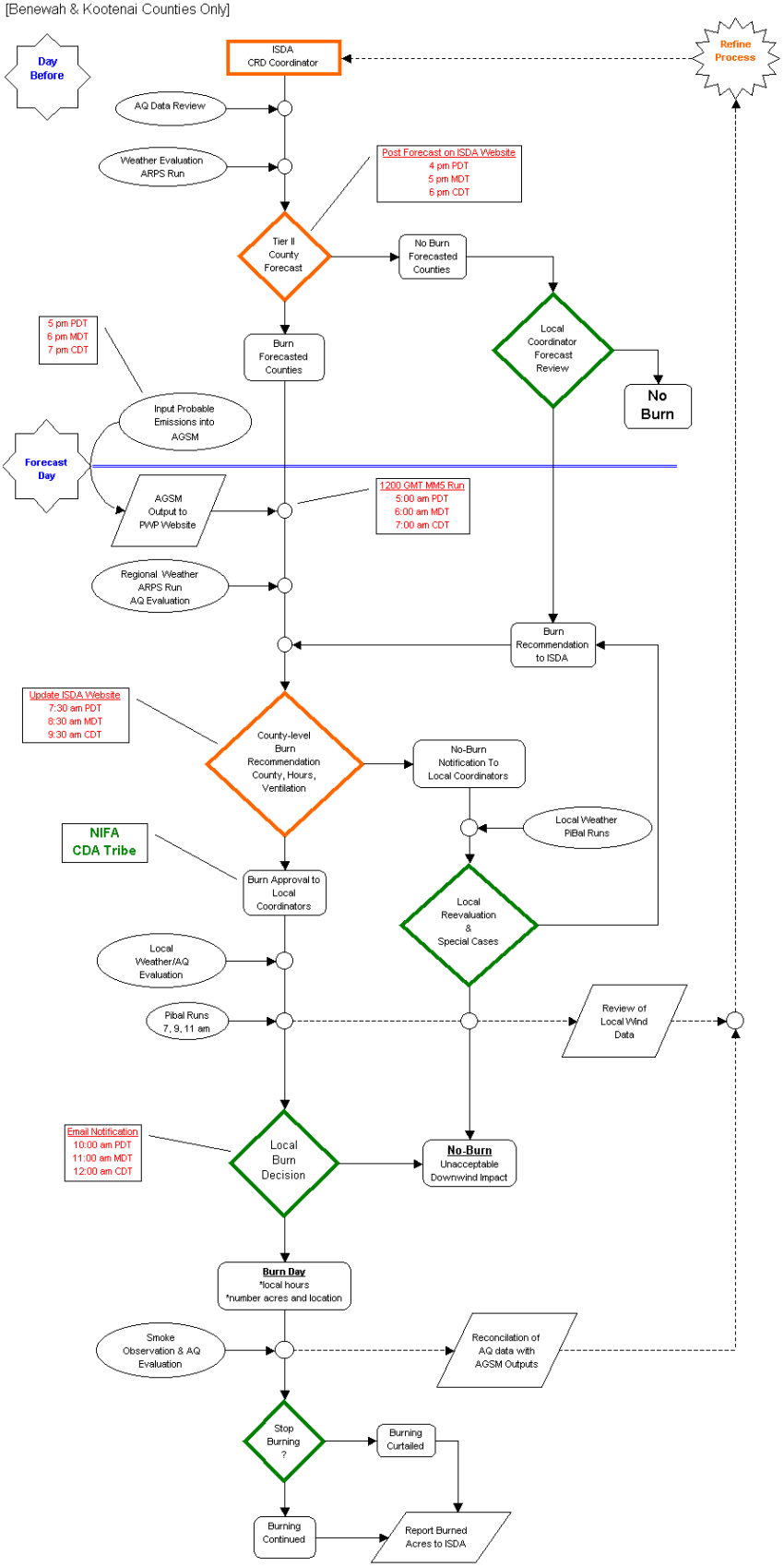
800. ADDITIONAL BURN DAYS.
The director may declare additional burn days under special situations provided the burning of crop residue would not result in an ~~violation of ambient air quality standards established by USEPA and IDEQ~~ exceedence of NAAQS ~~(7-1-01)T~~( )T

801. -- 999. (RESERVED).

APPENDIX C

PROPOSED TIER II COUNTIES BURN DECISION PROCESS FOR 2002

[Benewah & Kootenai Counties Only]



APPENDIX D

Coeur d'Alene Regional Office — **Air Quality Monitoring Network 2001**

Status as of July 1, 2002

Site Location/Address	AIRS ID Number	Measurement Method	AIRS Method #	Equipment Type/Model #	Number Devices	Sampling Frequency	Program Type	Site Coordinates Latitude	Longitude
Lakes Middle School	16-055-0006	Real-time PM10		Rupprecht & Patashnick Co., 1400 a TEOM	1	1/1	SLAMS; AQA, Smoke Mgmt	47 40' 56.3332"	116 45' 55.9092"
930 N. 15th Street		Real-time PM2.5		Rupprecht & Patashnick Co., 1400 a TEOM w/ SCC	1	1/1	CORE - SPM for PM2.5 Network		
Coeur d'Alene, ID 83814		Sequential FRM for PM2.5	117	Rupprecht & Patashnick Co., FRM Model 2025	2	1/6	CORE - Precision site for FRM 2025		
		High volume PM10	063	Andersen/GMW Model 1200 VFC (RFPS-1287-063)	1	1/6	SPM		
Post Falls Well Site	16-055-0014	Sequential FRM for PM2.5	117	Rupprecht & Patashnick Co., FRM Model 2025	1	1/6	CORE - SLAMS	47 43' 17.7457"	116 55' 34.1363"
1357 1/2 Syringa		Real-time PM2.5		Rupprecht & Patashnick Co., 1400 a TEOM w/ SCC	1	1/1	SLAMS; AQA, Smoke Mgmt		
Post Falls, ID 83854									
Meyer Ranch		Light scattering for PM		Radiance Research M903 Nephelometer	1	1/1	Smoke management	47 48' 10.0640"	116 47' 41.3531"
W. 855 Boekel Road						(seasonal)		47 48' 11.2860"	116 47' 37.5647"
Hayden, ID 83835									
Avista Odorizer Station #600		Light scattering for PM		Radiance Research M903 Nephelometer	1	1/1	Smoke management	47 48' 11.1060"	116 52' 58.7316"
Boekel Road						(seasonal)			
Rathdrum, ID									
Meyer Ranch - West		Meteorological		Campbell Met Station	1	1/1	SLAMS, AQA	47 46' 57.7200"	116 52' 54.8400
Hwy. 41 and Lancaster Rd.				(ws, wd, rh, temp., pressure, and solar rad.)		(15 min. avg)			
Rathdrum, ID 83858									
City of Athol Well Site		Light scattering for PM		Radiance Research M903 Nephelometer	1	1/1	Smoke management	47 56' 56.9580"	116 42' 35.7264"
Grove Ave. and Pastime St.						(seasonal)			
Athol, ID 83801									
Fighting Creek Landfill		Light scattering for PM		Radiance Research M903 Nephelometer	1	1/1	Smoke management	47 31' 56.4529"	116 55' 37.2323"
Hwy 95, South CDA						(seasonal)			
Sandpoint Middle School	16-017-0001	Real-time PM2.5		Rupprecht & Patashnick Co., 1400 a TEOM w/ SCC	1	1/1	SLAMS; AQA, Smoke Mgmt	48 16' 14.2787"	116 34' 3.8064"
N. Division Street		Real-time PM10		Rupprecht & Patashnick Co., 1400 a TEOM	1	1/1	SLAMS; AQA, Smoke Mgmt		
Sandpoint, ID 83864		Sequential FRM for PM2.5	117	Rupprecht & Patashnick Co., FRM Model 2025	1	1/6	CORE - SLAMS		
Sandpoint Met Station		Meteorological		Campbell Met Station	1	1/1	SLAMS, AQA	48 17' 30.5520	116 33' 23.6160
U of I Ag Research Station				(ws, wd, rh, temp., pressure, and solar rad.)		(15 min. avg)			
Boyer Avenue									
Sandpoint, ID 83864									
Pinehurst Elementary School	16-079-0017	Real-time PM2.5		Rupprecht & Patashnick Co., 1400 a TEOM w/ SCC	1	1/1	SLAMS; AQA, Smoke Mgmt	47 32' 12.2072"	116 14' 12.9599"
106 Church Street		Real-time PM10		Rupprecht & Patashnick Co., 1400 a TEOM	1	1/1	SLAMS; AQA, Smoke Mgmt		
Pinehurst, ID 83850		Sequential FRM for PM2.5	117	Rupprecht & Patashnick Co., FRM Model 2025	1	1/3	CORE - SLAMS		
USFS Bullpen Bldg	16-079-0017	High volume PM10	063	Andersen/GMW Model 1200 VFC (RFPS-1287-063)	2	1/3	SLAMS	47 19' 00.0006"	116 34' 13.0070"
9th and Cedar									
St. Maries, ID 83861									

NOTE: SLAMS - State and Local Air Monitoring Station, AQA - Air Quality Advisory, TSP - Total Suspended Particulates, CORE - Community oriented monitoring, SPM - special purpose monitor

Sampling frequency; 1/1 is everyday sampling, 1/3 is every third day sampling, 1/6 is every sixth day sampling

High Volume PM10 samplers at Lakes, Sandpoint and Pinehurst sites are no longer the primary reporting method and are backup samplers for the PM10 TEOM's.

APPENDIX 7

Final 2002 Burn Decisions
For Kootenai and Benewah Counties

Monday August 12, 2002

The Rathdrum Prairie ISDA coordinator determined that today is not a burn day for the Rathdrum Prairie in Kootenai County.

A final decision has not been made yet by the Coeur d'Alene Tribe smoke management coordinator. A decision is expected around 12 noon today.

The ISDA has made recommendations today for burning in Kootenai County (300 acres) and Benewah County (500 acres). Burning is allowed from 12 to 5 pm PDT as ventilation improves during the afternoon. Winds are forecasted from the north to northwest. Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm

Please let me know if you have any questions about the information above.

Tuesday August 13, 2002

The Rathdrum Prairie ISDA coordinator determined that today is not a burn day for the Rathdrum Prairie in Kootenai County.

A final decision has been made by the Coeur d'Alene Tribe smoke management coordinator. Field burning within the reservation boundaries is approved for 300 acres in Kootenai County and 500 acres in Benewah County. Burn times are approved from 1:00 PM to 5:00 PM.

Winds are forecasted from the north to northwest. Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on burning in other parts of the state.
Please let me know if you have any questions about the information above.

Wednesday August 14, 2002

After conducting a 10 acre test burn this morning, the Rathdrum Prairie ISDA coordinator determined that today is not a burn day for the Rathdrum Prairie in Kootenai County.

The Coeur d'Alene Tribe smoke management coordinator has approved field burning within the reservation boundaries. Burning is approved for 500 acres in Benewah County. Burn times are approved from 10:00 AM to 1:00 PM. An additional 500 acres may be approved in Kootenai County within the reservation boundaries, a final decision is pending.

Winds are forecasted from the northwest. Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on burning in other parts of the state.
Please let me know if you have any questions about the information above.

Thursday August 15, 2002

The Rathdrum Prairie ISDA coordinator determined that today is not a burn day for the Rathdrum Prairie in Kootenai County.

A final decision has not been made by the Coeur d'Alene Tribe smoke management coordinator, however it is likely that they will proceed with the recommendation from the ISDA. . Burn times are recommended from 10:30 AM to 3:00 PM.

Winds are forecasted from the northwest. Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.
Please let me know if you have any questions about the information above.

Monday, August 19, 2002

The Rathdrum Prairie ISDA coordinator determined that local conditions are appropriate for field burning and has approved burning for selected fields on the Rathdrum Prairie in Kootenai County. Burn times are recommended from 11:00 AM to 4:00 PM.

The Coeur d'Alene Tribe smoke management coordinator did not approve field burning for today for fields in Kootenai and Benewah Counties within the reservation boundaries.

Winds are forecasted from the southwest. Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.
Please let me know if you have any questions about the information above.

Tuesday, August 20, 2002

The Rathdrum Prairie ISDA coordinator determined that local conditions are appropriate for field burning and has authorized burning for selected fields on the Rathdrum Prairie in Kootenai County. Burn times are recommended from 10:30 AM to 2:00 PM. Burning is authorized for 300 acres and is subject to change depending on weather conditions.

The Coeur d'Alene Tribe smoke management coordinator has authorized field burning for today for fields in Kootenai and Benewah Counties within the reservation boundaries. Burning is limited to 300 acres in Kootenai County and 550 acres in Benewah County. Burn time is from 10:30 AM to 2:00 PM.

Winds are forecasted from the west to southwest. Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.
Please let me know if you have any questions about the information above

Wednesday, August 21, 2002

The Rathdrum Prairie ISDA coordinator determined that today is not a burn day for the Rathdrum Prairie in Kootenai County. A small, 2 acre test fire was conducted this morning to further evaluate local conditions.

The Coeur d'Alene Tribe smoke management coordinator has prohibited field burning for today within the reservation boundaries.

Winds are forecasted from the west to northwest with variable conditions across the region. Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.
Please let me know if you have any questions about the information above

Thursday, August 22, 2002

After evaluating the local weather conditions, the Rathdrum Prairie ISDA coordinator has determined that today is not a burn day for the Rathdrum Prairie in Kootenai County. .

The Coeur d'Alene Tribe smoke management coordinator has prohibited field burning for today within the reservation boundaries.

Winds are light and variable conditions across the region. Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.
Please let me know if you have any questions about the information above

Monday, August 26, 2002

The Rathdrum Prairie ISDA coordinator determined that local conditions are appropriate for field burning and has approved burning for selected fields on the Rathdrum Prairie in Kootenai County. Burn times are recommended from 11:00 AM to 3:00 PM. Burning is authorized for **500 acres** and is subject to change depending on local weather conditions.

The Coeur d'Alene Tribe smoke management coordinator did not approve field burning for today for fields in Kootenai County within the reservation boundaries. The Coeur d'Alene Tribe smoke management coordinator has authorized field burning for **500 acres in Benewah County** within the Coeur d'Alene Indian Reservation boundaries.

Winds are forecasted from the west to southwest. Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above

Tuesday, August 27, 2002

The Rathdrum Prairie ISDA coordinator determined that today is not a burn day for the Rathdrum Prairie in Kootenai County.

The Coeur d'Alene Tribe smoke management coordinator has authorized field burning for today for fields in Kootenai and Benewah Counties within the reservation boundaries. At the present time, burning is approved for 700 acres in Kootenai County and 700 acres in Benewah County within the reservation boundaries and is subject to change depending on local conditions. Burn time is from 11:00 AM to 3:00 PM.

Winds are forecasted from the northeast. Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above

Wednesday, August 28, 2002

The Rathdrum Prairie ISDA coordinator determined that today is not a burn day for the Rathdrum Prairie in Kootenai County.

The Coeur d'Alene Tribe smoke management coordinator has authorized field burning for today for fields in Kootenai and Benewah Counties within the reservation boundaries. At the present time, burning is approved for 1000 acres in Kootenai County and 1000 acres in Benewah County within the reservation boundaries and is subject to change depending on local conditions. Burn time is from 11:00 AM to 3:00 PM.

Winds are forecasted from the northeast. Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above

Thursday, August 29, 2002

After evaluating the local weather conditions, the Rathdrum Prairie ISDA coordinator has determined that today is not a burn day for the Rathdrum Prairie in Kootenai County. .

The Coeur d'Alene Tribe smoke management coordinator has prohibited field burning for today within the reservation boundaries.

Winds are light and variable conditions with possible thunderstorm activity across the region. Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above.

Tuesday, September 03, 2002

The Rathdrum Prairie ISDA coordinator determined that today is not a burn day for the Rathdrum Prairie in Kootenai County.

The Coeur d'Alene Tribe smoke management coordinator has prohibited field burning for today within the reservation boundaries.

Winds are from the southwest with cloud cover and possible scattered showers. Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above.

Wednesday, September 04, 2002

The Rathdrum Prairie ISDA coordinator determined that today is not a burn day for the Rathdrum Prairie in Kootenai County.

The Coeur d'Alene Tribe smoke management coordinator has prohibited field burning for today within the reservation boundaries.

Winds are from the southwest with scattered clouds.

Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above.

Thursday, September 05, 2002

The Rathdrum Prairie ISDA coordinator determined that today is not a burn day for the Rathdrum Prairie in Kootenai County.

The Coeur d'Alene Tribe smoke management coordinator has prohibited field burning for today within the reservation boundaries.

Winds are from the southwest with overcast skies and scattered rain.

Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above.

Monday, September 09, 2002

The Rathdrum Prairie ISDA coordinator determined that local weather conditions are appropriate for field burning and has approved burning on the Rathdrum Prairie in Kootenai County. Burn times are recommended from 11:00 AM to 3:00 PM. Burning is authorized for 250 acres, however, no registered growers have fields that are ready to burn at this time. It is very unlikely that any field burning will occur today on the Rathdrum Prairie.

The Coeur d'Alene Tribe smoke management coordinator has prohibited field burning for today within the reservation boundaries.

Winds are currently from the southwest.

Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above.

Tuesday, September 10, 2002

The Rathdrum Prairie ISDA coordinator determined that local weather conditions are appropriate for field burning and has approved burning on the Rathdrum Prairie in Kootenai County. Burn times are recommended from 11:00 AM to 2:00 PM. Burning is authorized for 300 acres, however, no registered growers have fields that are ready to burn at this time. It is very unlikely that any field burning will occur today on the Rathdrum Prairie.

The Coeur d'Alene Tribe smoke management coordinator has authorized field burning for **300 acres in Benewah County** within the Coeur d'Alene Indian Reservation boundaries. Burn times are recommended from 11:00 AM to 2:00 PM. The Coeur d'Alene Tribe smoke management coordinator did not approve field burning for today for fields in Kootenai County within the reservation boundaries

Winds are currently from the south-southwest.

Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above.

Wednesday, September 11, 2002

At the present time, the Rathdrum Prairie ISDA coordinator is still evaluating local weather conditions and may approve a <10 acre test burn to further evaluate conditions on the Rathdrum Prairie in Kootenai County. This message will be updated when a decision is finalized.

The Coeur d'Alene Tribe smoke management coordinator has authorized field burning for **400 acres in Benewah County** within the Coeur d'Alene Indian Reservation boundaries. Burn times are recommended from 10:30 AM to 1:00 PM. The Coeur d'Alene Tribe smoke management coordinator did not approve field burning for today for fields in Kootenai County within the reservation boundaries

Winds are currently from the west-southwest.

Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above.

Thursday, September 12, 2002

The Rathdrum Prairie ISDA coordinator determined that local weather conditions are appropriate for field burning and has approved burning on the Rathdrum Prairie in Kootenai County. Burn times are recommended from 11:00 AM to 2:00 PM. Burning is authorized for 700 acres, however, no registered growers have fields that are ready to burn at this time. It is very unlikely that any field burning will occur today on the Rathdrum Prairie.

The Coeur d'Alene Tribe smoke management coordinator has authorized field burning for **600 acres in Benewah County** within the Coeur d'Alene Indian Reservation boundaries. Burn times are recommended from 11:00 AM to 2:00 PM. The Coeur d'Alene Tribe smoke management coordinator did not approve field burning for today for fields in Kootenai County within the reservation boundaries

Winds are currently from the west-southwest.

Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above.

Monday, September 16, 2002

The Rathdrum Prairie ISDA coordinator determined that local weather conditions are appropriate for field burning and has approved burning on the Rathdrum Prairie in Kootenai County. Burn times are recommended from 9:30 AM to 3:00 PM. Burning is authorized for 500 acres. Burning will be monitored closely and acreage may be increased or reduced dependant on smoke dispersion conditions.

The Coeur d'Alene Tribe smoke management coordinator has authorized field burning for today for fields in Kootenai and Benewah Counties within the reservation boundaries. At the present time, burning is approved for 500 acres in Kootenai County and 1000 acres in Benewah County within the reservation boundaries and is subject to change depending on local conditions. Burn time is from 9:30 AM to 2:00 PM.

Winds are currently from the southwest.

Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above.

Tuesday, September 17, 2002

The Rathdrum Prairie ISDA coordinator determined that today is not a burn day for the Rathdrum Prairie in Kootenai County.

The Coeur d'Alene Tribe smoke management coordinator has prohibited field burning for today within the reservation boundaries.

Winds are currently from the west-southwest.

Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above.

Wednesday, September 18, 2002

The Rathdrum Prairie ISDA coordinator determined that today is not a burn day for the Rathdrum Prairie in Kootenai County.

The Coeur d'Alene Tribe smoke management coordinator has authorized field burning for today for fields in Kootenai and Benewah Counties within the reservation boundaries. At the present time, burning is approved for 300 acres in Kootenai County and 600 acres in Benewah County within the reservation. Burn time is from 11:00 AM to 2:00 PM

Winds are generally from the west.

Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above.

Thursday, September 19, 2002

The Rathdrum Prairie ISDA coordinator determined that local weather conditions are appropriate for field burning and has approved burning on the Rathdrum Prairie in Kootenai County. Burn times are recommended from 10:00 AM to 3:00 PM. Burning is authorized for 500 acres. Burning will be monitored closely and acreage may be increased dependant on smoke dispersion conditions.

A final decision has not been made by the Coeur d'Alene Tribe smoke management coordinator at this time. It is likely that they will authorize field burning for today for fields in Kootenai and Benewah Counties within the reservation boundaries. At the present time, burning is approved for 500 acres in Kootenai County and 1000 acres in Benewah County within the reservation. Burn time is from 10:00 AM to 2:00 PM

Winds are generally from the southwest.

Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above.

Friday, September 20, 2002

The Rathdrum Prairie ISDA coordinator determined that today is not a burn day for the Rathdrum Prairie in Kootenai County.

The Coeur d'Alene Tribe smoke management coordinator has authorized field burning for today for fields in Kootenai and Benewah Counties within the reservation boundaries. At the present time, burning is approved for 900 acres in Kootenai County and 800 acres in Benewah County within the reservation and is subject to change depending on local conditions. Burn time is from 10:00 AM to 1:00 PM

Winds are generally from the north to northwest.

Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above.

Monday, September 23, 2002

At the present time, the Rathdrum Prairie ISDA coordinator is still evaluating local weather conditions and has approved a 15 acre test burn on baled field to further evaluate conditions on the Rathdrum Prairie in Kootenai County. This message will be updated when a decision is finalized.

The Coeur d'Alene Tribe smoke management coordinator has prohibited field burning for today within the reservation boundaries.

Winds are variable but generally from the west to northwest at upper elevations.

Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above.

Monday, September 23, 2002 -- Update

After observing a test burn on the Rathdrum Prairie, the ISDA local coordinator determined that local weather conditions are appropriate for field burning and has approved burning on the Rathdrum Prairie in Kootenai County. The coordinator will approve fields for burning on a case-by-case basis.

The Coeur d'Alene Tribe smoke management coordinator has prohibited field burning for today within the reservation boundaries.

Winds are variable but generally from the west to northwest at upper elevations.

Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above.

Tuesday, September 24, 2002

The Rathdrum Prairie ISDA coordinator determined that today is not a burn day for the Rathdrum Prairie in Kootenai County.

The Coeur d'Alene Tribe smoke management coordinator has authorized field burning for today for fields in Kootenai and Benewah Counties within the reservation boundaries. At the present time, burning is approved for 700 acres in Kootenai County and 800 acres in Benewah County within the reservation. Burn time is from 11:00 AM to 3:00 PM

Winds are generally from the northwest.

Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above.

Wednesday, September 25, 2002

The Rathdrum Prairie ISDA coordinator determined that local weather conditions are appropriate for field burning and has approved burning on the Rathdrum Prairie in Kootenai County. Burn times are recommended from 11:00 AM to 3:00 PM. Burning is authorized for 175 acres.

The Coeur d'Alene Tribe smoke management coordinator has authorized field burning for today for fields in Kootenai and Benewah Counties within the reservation boundaries. At the present time, burning is approved for 325 acres in Kootenai County and 700 acres in Benewah County within the reservation. Burn time is from 12:00 AM to 4:00 PM

Winds are generally from the northeast at the surface to northwest at upper elevations.

Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above.

Thursday, September 26, 2002

Today is not a burn day for the Rathdrum Prairie in Kootenai County. The Rathdrum Prairie coordinator said all field burning on the Rathdrum Prairie was completed on Wednesday

The Coeur d'Alene Tribe smoke management coordinator has prohibited field burning for today within the reservation boundaries.

Winds are variable but generally from the west to northwest at upper elevations.

Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above.

Friday, September 27, 2002

Agricultural field burning is all done for the season on the Rathdrum Prairie in Kootenai County as of Wednesday, according to the Rathdrum Prairie local coordinator.

After evaluating local weather conditions, the Coeur d'Alene Tribe smoke management coordinator has authorized field burning for today for fields in Kootenai and Benewah Counties within the reservation boundaries. At the present time, burning is approved for fields in Kootenai County and Benewah County within the reservation on a case-by-case basis. Burn time is from 12:00 AM to 3:00 PM.

At the present time, winds are from the northeast.

Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above.

Monday, September 30, 2002

Agricultural field burning is all done for the season on the Rathdrum Prairie in Kootenai County as of Wednesday, September 25th, according to the Rathdrum Prairie smoke management coordinator.

After evaluating local weather conditions, the Coeur d'Alene Tribe smoke management coordinator has prohibited field burning for today within the reservation boundaries.

Winds are from the southwest.

Check the ISDA website at http://www.agri.state.id.us/Crop/crdinfo.htm for additional information on agricultural burning in other parts of the state. Click on the link to the new Online Crop Residue Disposal Information to get the latest information for each day of this month.

Please let me know if you have any questions about the information above.